

## 4.0 Strategic Initiatives Discussion

Acceleration of the Savannah River Site (SRS) Environmental Management (EM) Cleanup Program will be achieved through the implementation of the fourteen strategic initiatives described in this section. These descriptions include a discussion of scope, cost, schedule, facility end state at completion (if appropriate), assumptions to achieve success, and success measures for each initiative. Additional information including specific actions, milestones, and detailed descriptions that support each of the strategic initiatives are included in Sections 8 and 9.

### 4.1 Strategic Initiatives Summary and Schedule

The 14 initiatives include:

#### High Level Waste (HLW) Initiatives

WM-1, Expedited HLW Processing completes HLW processing eight years earlier than scheduled and saves \$5.4 billion for SRS and an additional \$1 billion for the Department of Energy (DOE) by segregating HLW into four components and tailoring the treatment to each of those components. In addition, this initiative classifies the HLW tanks as closure facilities to appropriately define the requirements to manage these tanks consistent with their use (waste storage) and endstate.

WM-2, Expedited Risk-Based Tank and Facility Closure transitions HLW tank closures and other HLW facilities slated for closure to a risk-based approach that reduces the cost of the HLW program by \$0.7 billion.

#### Nuclear Materials Initiatives

MM-1, Accelerated Nuclear Material Facilities Consolidation and Deactivation accelerates the consolidation and deactivation of the four current Plutonium (Pu) processing facilities and three spent nuclear fuel (SNF) storage basins into two Pu processing facilities and one SNF storage basin, resulting in significant risk reduction and about \$485 million near-term savings.

MM-2, Enhanced SNF Disposition accelerates the start of SNF disposition by six years, continues the safe receipt and storage of SNF, and enables an integrated disposition strategy and the deferral of \$1 billion in current baseline costs for SNF disposition.

MM-3(C), Optimize Disposition of Complex-Wide Plutonium Bearing Materials accelerates the movement of plutonium bearing materials from across the DOE Complex to SRS, providing a disposition alternative for those materials that were “stranded” by the cancellation of the Plutonium Immobilization Project (PIP).

### **Solid Waste (SW) Initiatives**

WM-3, Expedite Transuranic (TRU) Waste Shipments to the Waste Isolation Pilot Plant (WIPP) accelerates the shipment of low-activity TRU waste to WIPP by 19 years, which reduces the risk of storing that material at SRS and saves approximately \$800 million.

WM-4, Accelerate Risk Reduction through Expedited Management of High-Activity TRU Waste accelerates the risk reduction associated with the high-activity TRU waste stored at SRS, as well as expedites the schedule for shipping this waste to WIPP by eight years, resulting in life-cycle savings of \$890 million.

WM-5, Cost Effective/Risk-Reducing Alternative to Incineration for Plutonium Recovery and Extraction (PUREX) Waste implements a new stabilization technology for PUREX waste treatment that reduces the risk posed by this waste by completing its treatment ten years earlier than the current commitment, resulting in life-cycle cost savings of \$85 million. This approach also enables early closure of the Consolidated Incineration Facility (CIF) and provides a possible treatment for PUREX waste contained in F Canyon.

### **Environmental Restoration (ER) Initiatives**

REM-1, Accelerate Closure of the Old Radioactive Waste Burial Ground (ORWBG) consolidates, integrates and accelerates the remediation of five high risk waste sites by bringing radiologically contaminated soils from four waste units into the ORWBG. This area will then be covered with a low permeability cap, eliminating the need for five separate remedial actions.

REM-2, Accelerate Contaminant Reduction in Fourmile Branch Stream substantially reduces the risk of contamination in the Stream by implementing new remediation technologies that will result in a reduction and possible elimination of the current pump, treat, and re-inject remediation systems.

REM-3, Accelerate Risk Reduction Through Innovative Technologies and Improved Regulatory Processes focuses on aggressive and efficient source cleanup which achieves low-cost monitoring end states or full closures decades earlier than would be achieved through the use of traditional remediation technologies.

### **Facilities Deactivation and Decommissioning (FDD) Initiative**

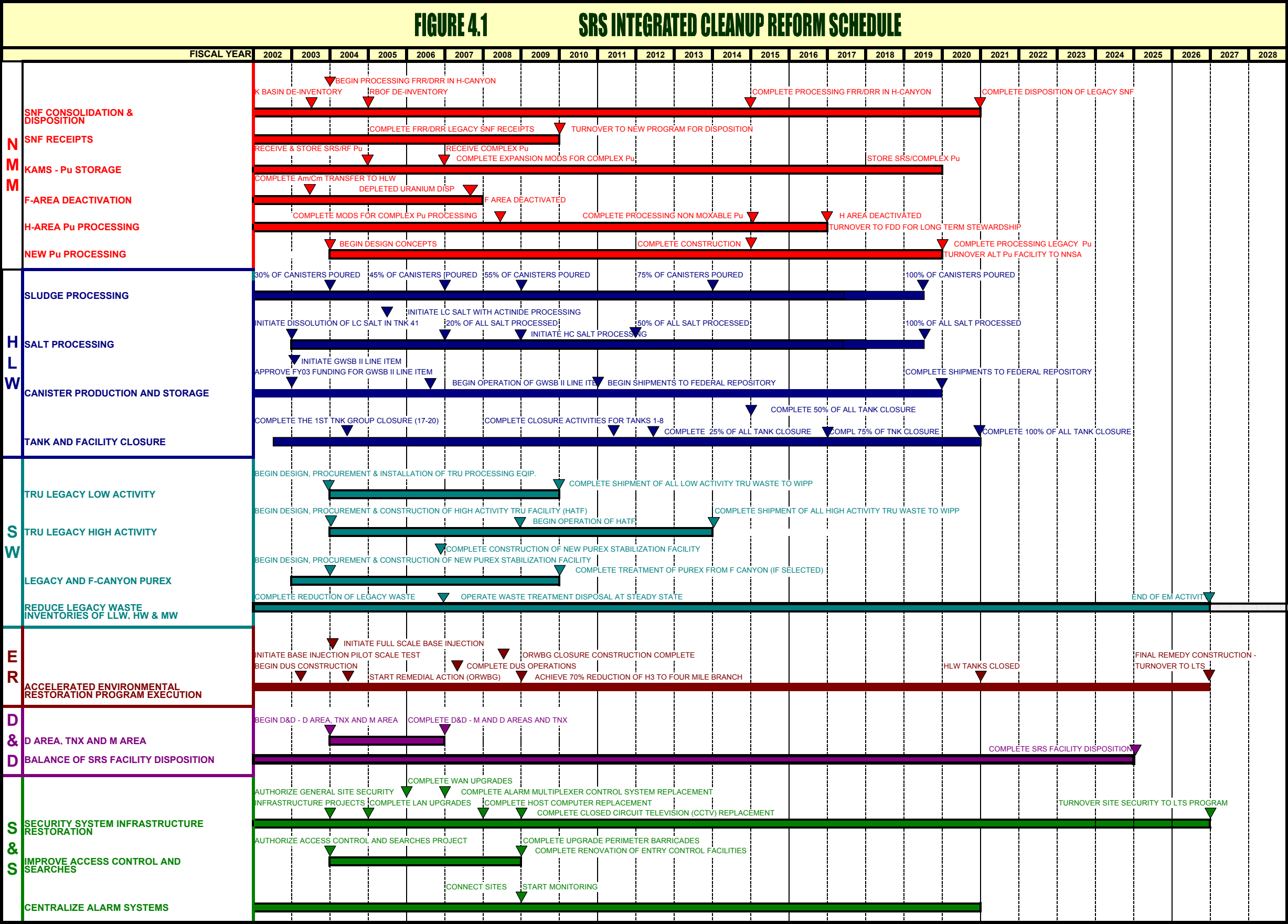
DD-1, Accelerate Facilities Disposition accelerates the decommissioning of currently inactive SRS facilities that are outside the Site’s central core and eliminates the risk these facilities pose to the environment, the public and the workers. This involves the removal of up to 72 facilities that are inactive and have no defined or anticipated future mission and that are in close proximity to the Site’s boundary and the public domain. In addition, deactivation activities are incorporated as described in other strategic initiatives above, such as MM-1, which includes the deactivation of the Receiving Basin for Offsite Fuel (RBOF) and F Canyon, and WM-5, which includes the deactivation of the CIF. Also, in WM-2, accelerated closure of the high level waste tanks will close EM facilities faster and support reduction of the EM operational footprint at SRS.

## Security Initiatives

SS-1, Accelerate Required Improvements to General Site Security Infrastructure improves physical security systems and access control to ensure protection of the SRS, its workers and the Special Nuclear Materials stored at SRS, as well as consolidated nuclear materials from across the DOE Complex.

SS-2(C), Centralize Alarm Services at SRS provides remote monitoring of fire, commercial security and process alarms from across the DOE Complex through the use of SRS's Central Alarm System, the only Underwriters Laboratory listed alarm station in the federal government.

Each of these strategic initiatives is discussed in greater detail in Section 4.2. A summary schedule of these initiatives built to achieve cleanup by 2025, is shown in Figure 4.1, "SRS Integrated Cleanup Reform Schedule" below. Detailed schedules are included in Section 8.



## 4.2 Program Descriptions with Strategic Initiative Details

The following provides the program descriptions and the details of each of the programmatic strategic initiatives to accelerate cleanup and risk reduction. The strategic initiative descriptions include details on each of the 14 components of the SRS Cleanup Reform Vision including scope, cost, schedule, facility end state completion (if appropriate), assumptions to achieve success, and success measures. Additional information including specific actions, milestones, and detail descriptions are included in Sections 8 and 9.

## High Level Waste

### Program Description

The mission of the HLW program is to:

- Safely and efficiently disposition approximately 37 million gallons of legacy highly radioactive waste material currently stored in 49 underground storage tanks
- Support nuclear materials stabilization and other site missions by ensuring that tank space is available to receive newly generated HLW
- Volume reduce HLW by evaporation
- Pretreat HLW for subsequent treatment and disposal
- Vitrify HLW, and then store and ship the canisters to the federal repository for final disposal
- Treat and dispose of the low-level waste fraction resulting from HLW pretreatment as Saltstone grout
- Empty and close HLW tanks and support systems per regulatory-approved approach
- Ensure that risks to the environment and human health and safety from HLW operations are eliminated or reduced to acceptable levels

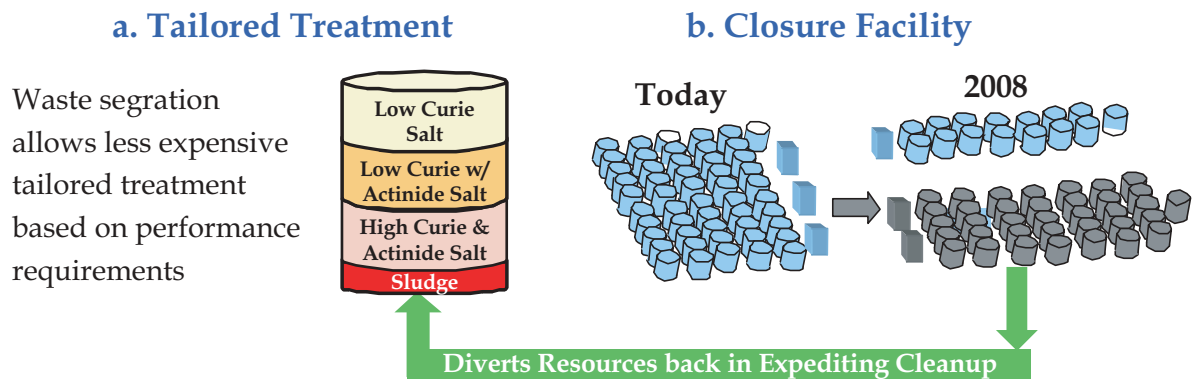
Completion of this mission will result in the permanent disposal of 37 million gallons of liquid HLW currently stored in 49 underground storage tanks, as well as all future waste from planned nuclear materials stabilization activities. A significant savings will be realized from the current approximately \$19 billion HLW baseline life-cycle cost. The high level fraction of the removed waste will be processed into borosilicate glass canisters at the Defense Waste Processing Facility (DWPF) and temporarily stored on site until the federal repository is available. The low-level fraction will go to either the Effluent Treatment Facility (ETF), which treats low-level radioactive wastewater or to the Saltstone Facility, which treats and permanently disposes of low-level filtrate by stabilizing it in a solid, cement-based waste form. The program is also responsible for closing high level waste tanks; to date, two high level waste tanks have been emptied and closed.

Closure of the HLW tanks is governed by the Federal Facility Agreement, a binding agreement between DOE, the Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (SCDHEC). Similarly, treatment of the liquid HLW is governed by the SRS Site Treatment Plan, an annual plan required and approved by SCDHEC. The Site Treatment Plan establishes a schedule for treating and disposing of mixed waste and identifies the DWPF as the treatment technology for liquid HLW.

## High Level Waste Program

### Initiative Title: WM-1, Expedited HLW Processing

**Initiative Description:** This initiative will expedite the processing of the 37 million gallons of HLW currently stored at SRS so that processing will be completed by 2019, eight years earlier than scheduled. (The program including Tank and Facility Closure will be completed in 2020 – Initiative WM-2.) The initiative will implement two major concepts: Tailored Treatment and Closure Facility.



The Tailored Treatment concept segregates the HLW into four major components. These components are:

- Sludge (which contains the majority of the long lived radionuclides)
- Low Curie Salt
- Low Curie Salt with higher actinide content
- High Curie Salt with higher actinide content

The segregation of these streams allows less costly treatment methods to be used on the waste that contains lower levels of radioactivity and shorter lived radionuclides. This initiative focuses on implementing expedited treatment methods, which ensures the fastest risk reduction, while meeting the performance requirements, which protect human health and the environment.

The first portion of the Tailored Treatment concept expedites sludge processing which is the highest risk component of the HLW. The proposal is based on the culmination of several years of research that supports the breakthrough development of specific frit (glass forming materials) for each batch of sludge feed at the DWPF. The change to a specialized frit for each sludge batch allows the glass to melt at a lower temperature, which allows DWPF to increase its annual canister production rate up to 230 canisters per year. The change to the newly developed frit will also make it possible to place approximately 25% more waste in each canister. These changes will still produce a glass that meets all repository requirements. So, for example, if DWPF produces 230 canisters, these canisters will dispose of the same amount of waste that would have required the production of 280 canisters in the past. The yearly production of an equivalent 280 canisters is an increase from the average of 230 canisters per year produced during FY98-FY01. The new frit will produce a glass that still meets all repository requirements.

The proposal has also accelerated the preparation of future sludge materials to meet the increased production levels by incorporating streamlined waste removal methods for Sludge Removal. This proposal utilizes the maximum volume reduction for vitrification by determining if materials that are currently slated for vitrification can meet performance requirements for alternate disposal paths using simplified treatment techniques.

The second portion of the Tailored Treatment concept expedites salt processing. The proposal segregates the salt waste into three components so tailored treatment programs can be implemented for each major component. The low curie salt waste will be segregated from the other salt waste by removing the interstitial salt solution from selected tanks. The remaining salt cake in those tanks will be dissolved. If it meets performance requirements, it will be stabilized and disposed of in Saltstone Vaults under a landfill disposal permit.

The low curie with high actinide salt waste will be segregated from the other salt waste by removing the interstitial salt solution from other tanks. The remaining salt cake in those tanks will be dissolved and then processed through an actinide removal step. (The actinide removal process will be provided by modifying two existing facilities at the site.) The actinides will be sent to vitrification, but the bulk of the volume will be stabilized and disposed of in Saltstone.

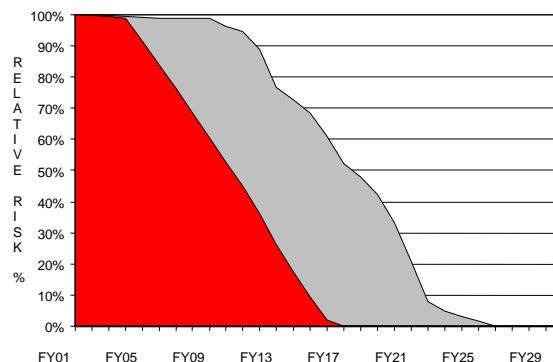
The high curie and high actinide salt waste is the remaining material not segregated into the two streams above. This material will be evaluated to determine what level of cesium and actinide removal will be required to meet the performance requirements so it can be stabilized and disposed of in Saltstone. If some of the salt materials only require low decontamination factor techniques, then these streams will be treated using simplified techniques such as the use of inorganic ion exchange resins. For materials unsuitable for disposal using simplified methods, then a small scale Caustic Side Solvent Extraction or other backup technology facility will be deployed. A total of 34 million gallons of salt waste is currently stored (hard salt and concentrated salt solution). To support processing, the salt must be dissolved and diluted to 6.0 molar sodium (Na) salt solution which will result in 83 million gallons of salt solution being disposed of using the three processing methods. It is expected that approximately 33% of the salt waste will be treated by each processing method.

The second concept included in this initiative seeks to rapidly transition a large portion of the tank farms into a Closure Facility. The tank farms can be broken into two functional types of tanks, those that actively prepare waste for disposition and those that store the HLW until it can be moved into the disposition process. This initiative will continue to manage the active processing tanks with the highest level of tank monitoring and equipment maintenance requirements consistent with the level of activity in these tanks. However, the tanks that store waste will be reclassified as a Closure Facility. In the Closure Facility concept, an evaluation will be made to determine the level of tank monitoring and equipment maintenance requirements that are appropriate for this type of dormant storage facility. A set of tailored Standards/Requirements Identification Documents (S/RIDs) and other requirements will be developed and approved that ensure a cost effective management program based on appropriate risk management is implemented. Initially the 24 old style tanks will be

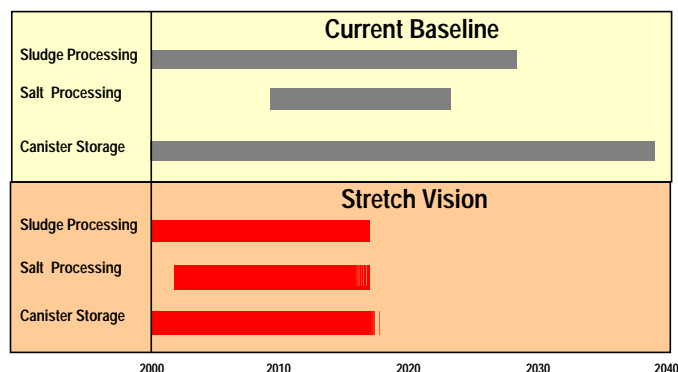


placed into the Closure Facility – with additional tanks added to the closure facility as they transition from active processing roles. The savings obtained by implementing the closure facility concept will be diverted to further expedite the high-risk reduction components of this initiative — the Expediting of Sludge and Salt Processing activities.

**Initiative Benefits:** The initiative substantially expedites the Site’s overall risk reduction profile as shown in the graphic. All risk associated with the storage of HLW is eliminated by 2019, eight years earlier than currently scheduled and provides substantial Homeland Security improvements for the Site.



This initiative also expedites all of the HLW schedules. These improvements range from a seven-year improvement in the start of Salt Processing to a 20-year improvement in all HLW leaving the Site.



Not only does this initiative provide a substantially improved program; it provides that program in a manner that reduces over \$5.4 billion of SRS lifecycle costs to the taxpayer, which represents an approximate 30% reduction in the costs.

This proposal also provides an additional benefit of producing approximately 1,000 fewer canisters of glass due to the higher waste loading. This results in an additional complex saving of up to \$1 billion from lower repository costs.

**Prerequisites to Success:** There are a number of prerequisites to the full success of this initiative. The first prerequisite will require Department of Energy-Headquarters (DOE-HQ), the Defense Nuclear Facilities Safety Board (DNFSB) and the Site to work cooperatively to define appropriate modified requirements to implement the Closure Facility approach. This will then allow these resources to be diverted to higher risk reduction priorities while still ensuring the safe storage of HLW.

The second item will require approval of a Waste Incidental to Reprocessing (WIR) determination for low curie and low curie with actinide salt. It will also require the Site to work cooperatively with the regulators to ensure their concurrence with the amount of salt waste that can be directly disposed of in grout.

The implementation guidance to DOE Order 435.1 needs to be revised.

- Change to existing guidance for implementing WIR requirements to allow sites to screen for radionuclides that are “key” at their site.
- More realistic Intruder Analysis guidelines to be used for sites where long-term institutional control will exist.
- Additional guidance for the WIR requirements that take advantage of the flexibility in these requirements to support a risk-based process.

If these changes are successful, it may also be appropriate to consider whether more appropriate points of compliance should be defined. This will further improve the closure process while maintaining acceptable levels of health and environmental protection.

In Fiscal Year 2003 (FY03), a new Line Item for a second Glass Waste Storage Building will need to be authorized and funded to allow the timely construction of this facility to support the expedited processing of canisters.

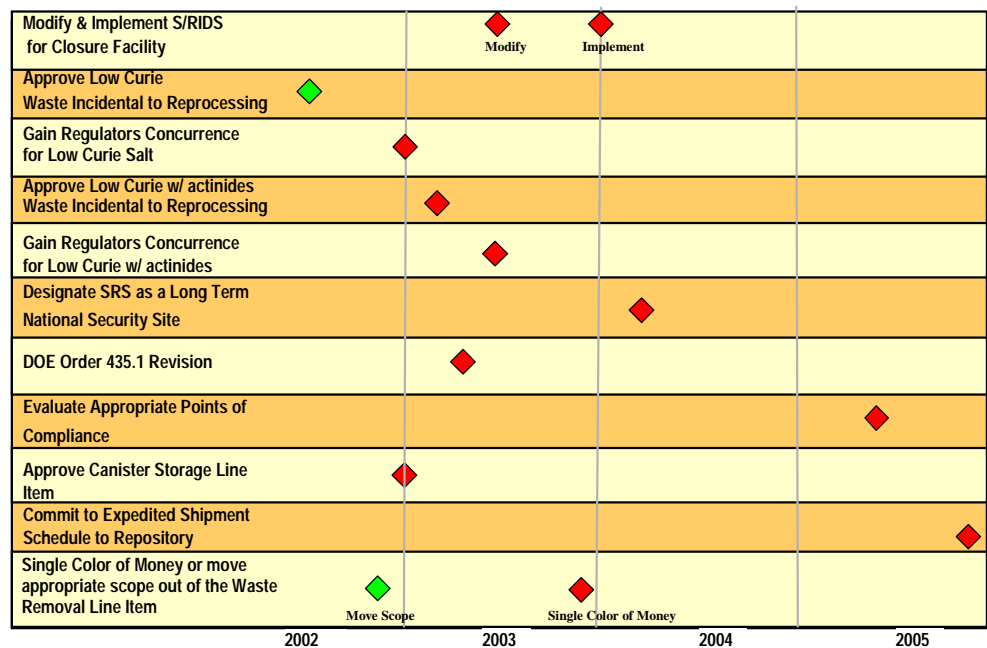
To support the completion of the HLW Program by 2020, it will also be necessary to expedite the shipment of canisters to the Federal Repository, that is 500 canisters will need to be shipped each year from 2010 through 2019.

With a designation as a Long-Term National Security Site by Congress or DOE, it will be clear that SRS will be maintained as an enduring site with a commitment to maintain the Site under institutional control for an extended period of time. This designation will allow closure costs to be substantially reduced.

The final prerequisite will be making changes that will allow the HLW Program to be executed using one “color of money”. This will allow the most flexibility within execution years to move resources to the most important activities. If this is not possible, then as a minimum, many of the activities that are now contained in the Waste Removal Line Item should be moved to operating expense (OPEX) funding. These activities do not create an asset – but instead provide the needed equipment so an asset can be removed from service.

These types of changes are needed to allow this initiative to be fully successful.

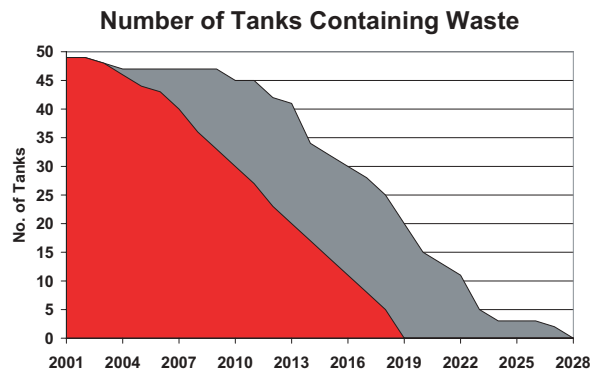
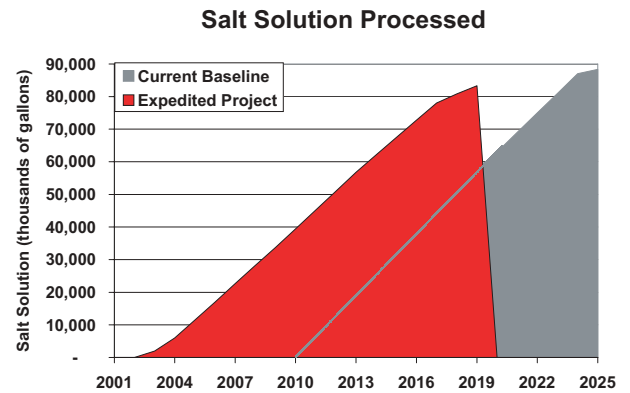
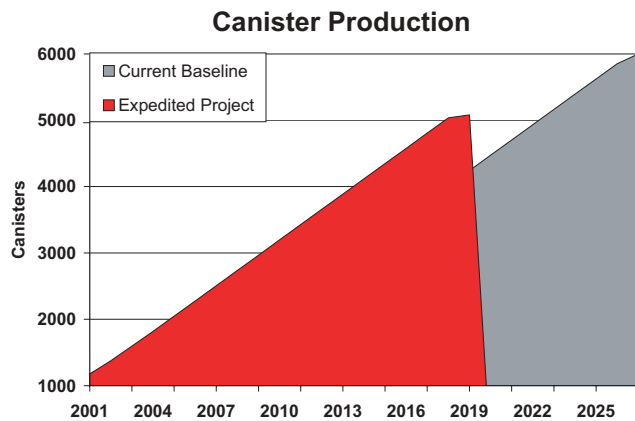
**Schedule:** For full success, the above prerequisites must be addressed in a timely manner as shown below:



**Funding Requirements (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined.

	FY03
Initiative Cost Estimate	122
Cost Reduction Challenge	(19)
Net Funding Request	103

**Performance Metrics:** The next three graphs show how this initiative will document the improved performance of the HLW Program. The first graph shows the improvement in the production of HLW canisters at DWPF. This proposal not only completes the production of these canisters by 2019, eight years ahead of schedule; it has the added benefit of producing 17% fewer total canisters. That means that approximately 1,000 fewer canisters must be shipped to the Federal Repository. The second graph shows the improvement in the processing of salt waste into the stabilized grout waste form. This proposal starts and completes the processing of this material seven years ahead of schedule. The last graph focuses on the overall goal of the program to remove waste from the storage tanks. This graph shows the substantial acceleration that will be possible in removing the waste from these tanks.



## High Level Waste Program

### Initiative Title: WM-2, Expedited Risk-Based Tank and Facility Closure

**Initiative Description:** This initiative implements expedited risk-based HLW tank and facility closure for the remaining HLW facilities, including the tanks, that contain 37 million gallons of HLW. The result is that tank closures will be complete by 2020, eight years earlier than scheduled. This initiative is broken into two components: 1) Tank Closures and 2) Facility Closures. The Tank Closure improvements will be discussed first. The precepts of the previous tank closure program were to remove as much material from the tank as technically possible and then close the tank with grout as soon as it was empty.

Some improvements that transition tank closures to a risk-based approach can be accomplished without DOE Order implementation guideline modifications. However, modifications to DOE Order 435.1 implementation guidelines will allow a more appropriate risk reduction approach to be taken.

With these DOE Order modifications in place, new performance assessment requirements will be used to determine the appropriate heel removal end point for each tank. It will also support a broader range of materials that could be used to close tanks such as grout containing depleted uranium or grout that contains some of the processed salt materials.

Even without successful modifications to the DOE Order, the Tank Closure program can be modified to schedule the closure to more appropriately focus the Site's efforts on risk reduction. This approach allows for large groups of tanks to be emptied, and once a large grouping of tanks is emptied, the tanks will be closed in a "batched" fashion, after the highest risk reduction activities have been completed at SRS. Grouping tanks for closure will significantly reduce the cost of completing the tank closures. This concept of Risk-based Tank Closures will ensure the protection of human health and the environment.

The second portion of this initiative is Risk-based Facility Closures. The precepts of the previous facility closure program were to remove as much material from the facility as technically possible and then close the facility by filling it with grout or removing the structure as soon as processing was completed.

Some improvements that transition facility closures to a risk-based approach can be accomplished by designating SRS as a Long-Term National Security Site. This will allow the facilities at the center of the Site to be closed without returning this area to greenfield conditions. This risk-based approach is not only appropriate, but it will also reduce the overall risk to workers. This will allow these facilities to be placed into a safe/de-inventoried/locked away condition. This concept for closure will be defined based on meeting performance assessment requirements rather than being based on attempts to return the area to as close to greenfield conditions as possible.

**Initiative Benefits:** This initiative will reduce the costs of the HLW Program by an additional \$0.7 billion over its lifecycle. This is a 4% reduction in the costs. Therefore, if both HLW Initiatives are implemented the total lifecycle savings will be \$6 billion, a 35% reduction in costs. This initiative requires the Expedited HLW Processing Initia-

tive as a prerequisite to allow the projected savings. While some savings can be accomplished with this initiative as a standalone proposal, the savings will be substantially reduced.

**Prerequisites to Success:** There are a number of prerequisites to the full success of this initiative.

The first prerequisite requires DOE or Congress to designate SRS as a Long-Term National Security Site. This type of designation will clearly state that SRS will be maintained as an enduring site with a commitment to maintain the site under institutional control for an extended period of time. This designation will open up many benefits and allow closure costs to be substantially reduced.

The second prerequisite will require that DOE Order 435.1 implementation guidelines be revised. These revisions include:

- Change to existing guidance for implementing WIR requirements to allow sites to screen for radionuclides that are “key” at their site.
- More realistic Intruder Analysis guidelines to be used for sites where long term institutional control will exist.
- Additional guidance for the WIR requirements that take advantage of the flexibility in these requirements to support a risk-based process.

It may also be appropriate if these changes are successful to consider whether more appropriate points of compliance should be defined. This will further improve the closure process while maintaining acceptable levels of health and environmental protection.

These types of changes are needed to allow this initiative to be fully successful.

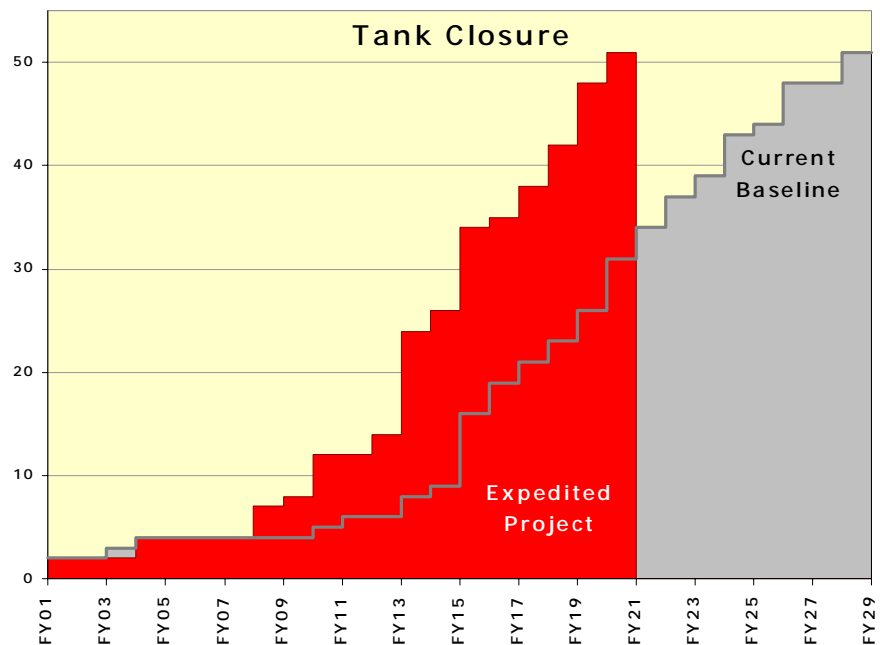
**Schedule:** For full success the above prerequisites must be addressed in a timely manner. The schedule for addressing these items is shown below:

Designate SRS as a Long Term National Security Site		◆	
DOE Order 435.1 Revision	◆		
Evaluate Appropriate Points Of Compliance			◆
	2003	2004	2005

**Funding Requirements (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined.

	FY03
Initiative Cost Estimate	0
Cost Reduction Challenge	0
Net Funding Request	-

**Performance Metrics:** This initiative in conjunction with Initiative WM-1 will allow completion of tank closures much earlier than the previous baseline.



## Nuclear Materials Management

### Program Description

The Nuclear Materials Management Program is responsible for the management of excess nuclear materials, including transportation, stabilization, storage and disposition of these materials. The primary nuclear materials in this program include components from dismantled weapons, residues from weapons processing activities and other legacy materials, such as irradiated SNF, unirradiated fuel materials, and legacy residues. These materials include the aluminum-clad SNF from previous SRS reactor operations, plutonium at SRS and from other DOE sites, and SNF received from domestic and foreign research reactors. The stabilization activities occur in the chemical separations facilities in the center of the Site. The program mission includes:

- Safe management of SRS and certain Rocky Flats nuclear materials and conversion of "at-risk" nuclear materials into stable forms suitable for interim to long-term storage
- Processing nuclear materials for the DOE/Tennessee Valley Authority (TVA) interagency agreement for transfer of uranium to TVA for use in its power reactors
- Establishment of plutonium stabilization and packaging capability to meet the DOE Standard for Stabilization, Packaging, and Storage of Plutonium-Bearing Materials
- Safe interim storage of special nuclear materials from other DOE sites and storage of SRS SNF, heavy water, and other nuclear materials awaiting disposition
- Receipt, storage and consolidation of spent nuclear fuel, along with spent fuel management and disposition, including processing, as required.

### FY03 Highlights

- Foreign Research Reactor/Domestic Research Reactor (FRR/DRR) Receipts
- Accelerated Receiving Basin for Offsite Fuel (RBOF) De-inventory
- Consolidate Rocky Flats Plutonium (Pu) material at SRS
- Complete Repackaging Rocky Flats classified Pu Metal
- Complete K-Basin Deactivation
- Disposition 728-F and 730-F depleted uranium (Du) Oxide
- Transfer Americium/Curium (Am/Cm) to HLW
- Initiate F Canyon deactivation and reduction of surveillance and maintenance (S&M)
- Continue dissolving Mark (Mk)-22 SNF in H Canyon
- Complete National Environmental Protection Act (NEPA) decision to begin processing FRR/DRR in H Canyon as early as 2003 on a not to interfere basis
- Complete Sterling Forest Oxide Material Campaign
- Begin blending of 94-1 highly-enriched uranium (HEU) solutions and transfer to TVA
- Begin packaging Pu metal into 3013's
- Complete development of non-MOXable Pu disposition path
- Continue dissolution of Pu Residues and converting appropriate material to oxide



## Nuclear Materials Program

### Initiative Title: MM-1, Accelerated Nuclear Material Facilities Consolidation and Deactivation

**Initiative Description:** This initiative accelerates the consolidation and deactivation of the current four Pu processing facilities and three SNF storage basins into two Pu processing facilities and one SNF storage basin. This will result in about a \$485 million near-term Nuclear Materials Program net savings.



**Current Baseline:** F Canyon completed the plutonium stabilization program in mid FY02 and will transfer all Am/Cm solutions to the HLW System by mid FY03. The current end states for F Canyon require on-going support for the following activities:

- Savannah River Technology Center (SRTC) / C-LAB waste,
- Sump handling,
- Make-up of cold chemicals for other facilities,
- Process solvent disposition, and
- Significant surveillance and maintenance (S&M) of DU solutions.

As currently projected, full F-Canyon deactivation will not be completed until after conversion of 190,000 gallons of DU solutions to oxide in FY12. FB-Line is scheduled to complete the stabilization, packaging, and de-inventory to K-Area Materials Storage (KAMS) and 235-F storage facilities for approximately 1,000 of the 3013 containers of the F-Area legacy plutonium bearing materials by FY07. The 235-F storage facility remains operational through FY20. RBOF de-inventory is scheduled to complete de-inventory of about 20 metric tons (MT) of spent nuclear fuel by the end of FY06 with transition to minimum S&M in FY07. K-Basin is scheduled to complete the de-inventory of approximately one MT of SNF by the end of FY03.

**Initiative Benefits:** Acceleration of nuclear material facility consolidation and deactivation into two Pu processing facilities and one SNF storage basin will save approximately \$485 million near-term Nuclear Materials Program net savings over the current baseline and will be accomplished concurrently in the following phases:

- Project-based acceleration of F-Canyon shutdown/deactivation. The FY00 F-Canyon Deactivation Integrated Project Management Plan and Deactivation End Point Report will be revised to integrate shutdown activities and deactivation activities into a seamless project with known end states. Safety Basis and associated S&M activities will be reduced as material changes to the facility are made. F-Canyon deactivation will be completed by FY07. It is expected that the minimum S&M for F Canyon and FB-Line will involve no more than \$40M in annual cost.
- FB-Line de-inventory will be complete in FY07, positioning FB-Line for deactivation and transition to minimum S&M.

- Accelerated completion of Pu packaging, stabilization, and de-inventory of approximately 1,000 of the 3013 containers from FB-Line (this acceleration is made possible by increasing the production throughput capacity of the Pu Packaging and Stabilization project without increasing baseline costs) and modification to establish long-term 3013 container surveillance capability.
- Accelerated de-inventory and deactivation of the RBOF and K fuel storage facilities (Accelerated deactivation is made possible because SRS has completed nearly 24 months of planned RBOF de-inventory project work in the first 15 months of the project).
- Associated reductions of area security and infrastructure costs (this reduction is made possible by the shrinkage of operational area footprints).

These savings (over and above those forecast in the current outyear budget plan) can be realized by accelerating deactivation of F Canyon, FB-Line, RBOF, and K-Basin. Acceleration provides:

- Transfer of cold chemical makeup responsibilities to H Canyon;
- Shutdown of Low-Activity Waste and General Purpose Evaporators, and the Acid Recovery Unit;
- Elimination of substantial S&M costs by disposition/solidification of the DU solutions and relocation of the PUREX solvent;
- Disposition of DU oxide from Buildings 728-F and 730-F;
- Reduction of the SNF basin footprint by consolidation of all current basin operations in RBOF and K-Basin into the L-Area SNF storage basin;
- Elimination of infrastructure and safeguards and security requirements for significant portions of F Area and all of the RBOF facility; and
- Identification of a basin chemical control resin regeneration alternative.

**Cost Savings Breakdown:** Realized savings versus the current baseline plan exceed a Nuclear Materials Program/FB-Line net saving of \$485 million.

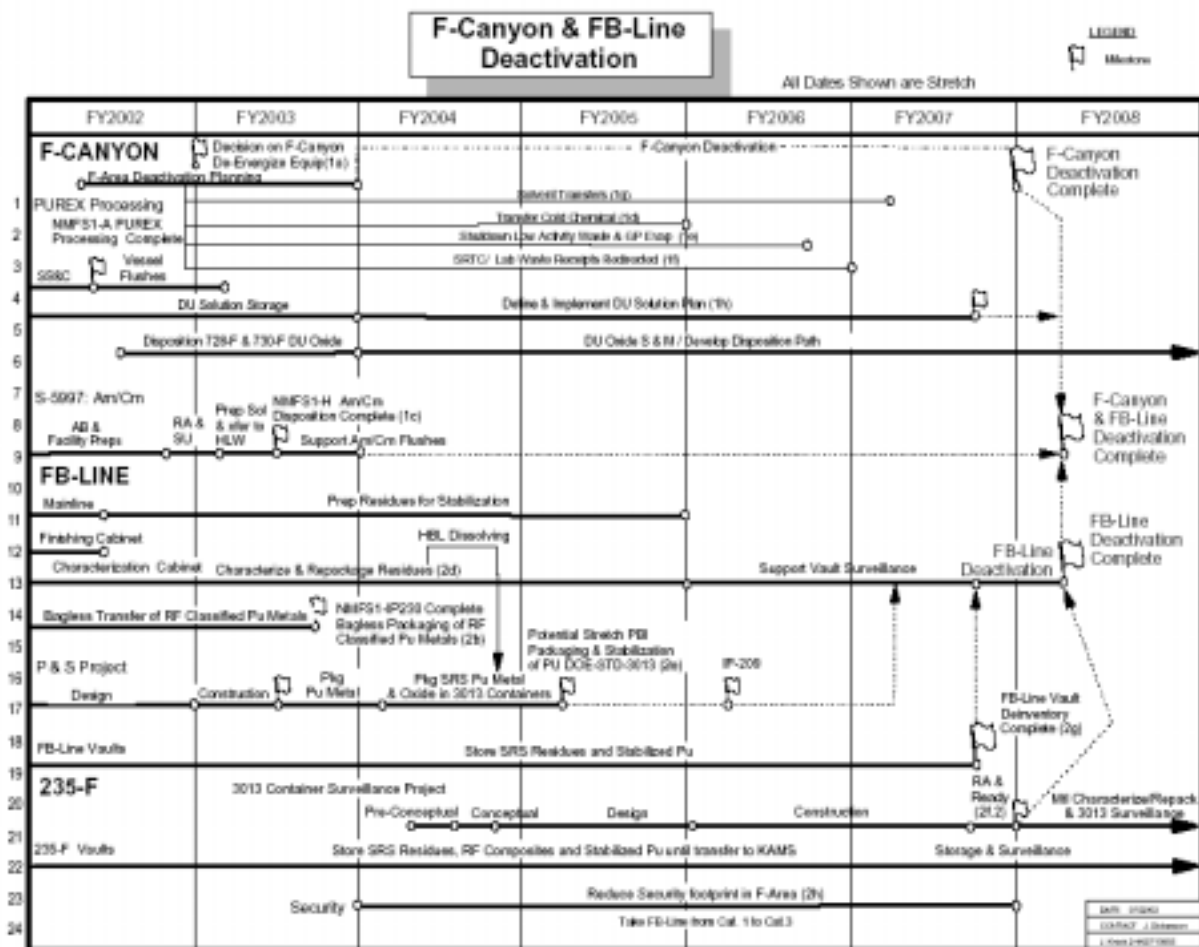
**Other Benefits:** In addition to the cost savings, accelerated stabilization and packaging of approximately 1,000 items at completion substantially accelerates the reduction of risk associated with these materials. Homeland Security is enhanced by consolidating and reducing the number of nuclear material storage locations from three sites to one (SRS/Rocky Flats/Richland to SRS), enabling security assets to be focused on a more limited number of protected areas. Finally, focusing resources on consolidated Pu processing and SNF storage facilities will enable available resources to more effectively maintain the physical and productivity infrastructure of the remaining facilities.

**Prerequisites to Success:** To successfully implement these alternate end states and achieve an accelerated deactivation, the following prerequisites are required:

- Obtain DOE approval of final facility end state and of F Canyon/FB-Line formal direction to begin deactivation.
- Identify alternative to F Canyon for laboratory waste handling.
- Develop Alternative Processing of contaminated water to enable shutdown of the general-purpose (GP) evaporator.
- Revise the F-Canyon Authorization Basis to eliminate sump flushing and enable shutdown of the Low-Activity Waste (LAW) Evaporator and Acid Recovery Unit (ARU).

- Obtain approval to move process solvent from F Canyon to Solid Waste Processing while awaiting disposition.
- Identify alternative for DU solution disposition.
- Disposition Du Oxide in Buildings 728-F and 730-F.
- Perform criticality analyses and engineering evaluations for SNF handling, transfer, and storage in L-Basin. Significant quantities of the fuel have been stored under water for more than thirty years, and evaluation is required before movement.
- Accelerate an alternative to RBOF resin regeneration.
- Provide secure transport capability to support FB-Line deinventory to KAMS and other intra-site shipments.
- Conclude National Environmental Policy Act (NEPA) determination for 3013 surveillance capability.
- Provide long-term Pu surveillance capability.

**Schedule:** Implementation of these initiatives is expected to accelerate the full deactivation of F Canyon from FY12 to FY07. Disposition of approximately 190,000 gallons of DU solutions is critical path and will be completed in FY07. De-inventory of FB-Line will be achieved by FY07. Long-term 3013 container surveillance and repackaging capability will be operational in FY07 (see below schedule). De-inventory of RBOF will be accelerated from FY06 to FY04. Accelerated K-Basin deinventory will pull the milestone forward from FY03 to the end of FY02.



**Funding Requirements FY03 – FY08 (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined.

	FY03
Initiative Cost Estimate <sup>1</sup>	21
Cost Reduction Challenge	(12)
Net Funding Request	9
Long-Term Stewardship	0

**Performance Metrics:** The main objective of this initiative is to accelerate deactivation of F Canyon, FB-Line, RBOF and K-Basin Facilities. Progress will be measured by tracking project implementation milestones (see above schedule) for the alternate end states and trending the reduction in F Area, RBOF and K-Basin direct costs. The performance metric for RBOF is the rate of de-inventory versus time.

<sup>1</sup> The budgetary estimates provided herein are planning estimates for the Cleanup Phase as delineated in DOE G 430.1-1. The degree of accuracy for these estimates is defined as minus 50% to plus 100% .

## Nuclear Materials Program

### Initiative Title: MM-2, Enhanced Spent Nuclear Fuel Disposition

**Initiative Description:** This initiative accelerates the start of SNF disposition by as much as six years from the current baseline, continues safe receipt and storage of SNF, and enables deferral of \$1 billion in current baseline costs for SNF disposition. It further supports development of a complex-wide integrated disposition strategy that can be implemented in a streamlined, cost-effective manner with substantially reduced lifecycle expenditures. The actions associated with this initiative provide accelerated SNF disposition, expanded storage capacity, and an integrated disposition strategy.



The \$250 million Treatment and Storage Facility (TSF) that is the current preferred NEPA disposition option for approximately 28 metric tons of heavy metal for aluminum-based SNF has been suspended to evaluate and identify the most cost-effective, integrated approach. Our proposal is to begin using H Canyon to dissolve and process SNF as early as FY03 to disposition current legacy fuel. Issues associated with Homeland Security represent risks not considered under the existing non-proliferation NEPA Record of Decision (ROD). We propose a NEPA action in early FY03 that considers chemical processing of selected SNF inventories as an allowed alternative for disposition while awaiting the integrated disposition strategy. This initiative will capitalize on current H Canyon capabilities to maximize SRS opportunities for commencing disposition of SNF without impact to other missions. H Canyon processing accelerates the start of SNF disposition from FY09 to as early as FY03. Integration with on-going material processing makes this the low-cost approach that commences immediate disposition of SNF and accelerates residual risk reduction associated with the SRS SNF storage inventory. However, negotiations must be initiated with the TVA to include the uranium into the blend down program or develop a similar agreement with another company.

This initiative assumes NEPA actions will be completed to enable processing of SNF through H Canyon on a not-to-interfere basis. If not obtained, projected SNF receipts will exceed the planned capacity of L-Basin around 2012. A just-in-time approach for basin storage capacity will maintain the single basin strategy and provide support of national programs. Increased capacity opportunities include (but are not limited to), installation of additional racks, removal of equipment/scrap to increase storage rack space, and potential dense packing of SNF.

Accelerated H Canyon disposition enables the deferral of approximately \$1 billion in SNF disposition lifecycle costs that can be utilized in higher risk areas while an integrated disposition strategy for SNF is developed. This integrated strategy will identify and validate new disposition technologies (such as co-disposal) and leverage complex wide initiatives for application at SRS, providing a more cost-effective and consistent approach to disposition. SRS proposes to provide technical input and support of the NEPA process for SNF, targeting a Record of Decision (ROD) in early FY03.

The current baseline assumes SRS receives SNF from offsite sources until 2035 as an EM responsibility. However, SNF receipts beyond 2009 are primarily from the on-going operation of domestic research reactors. If direct shipments to the repository are

approved, SRS recommends that offsite domestic receipts of SNF be stopped as soon as the National Repository opens for SNF (around 2012). Offsite domestic SNF would then be sent directly to the repository by the generator. Furthermore, EM may choose to divest the expense of Non-Legacy SNF (produced/received after 2009). Disposition of non-legacy SNF will be the responsibility of the appropriate DOE office which sponsors the producing program. Efforts at SRS will focus on determining and implementing the most cost-effective disposition of the existing legacy aluminum based SNF.

SNF likely disposition options include one or more of the following:

- **Direct Co-Disposal of SNF:** This alternative will provide development of new disposition technologies. Significant work has been performed on co-disposal technologies and the costs for implementation are highly dependent on RW acceptance criteria. Direct disposal of bare fuel results in the lowest cost. Direct disposal in a standardized container with a specialized packaging could result in costs similar to those expected for a melt and dilute facility. The advantage of co-disposal will be the integration of SRS efforts with those of other sites within the DOE complex, potentially resulting in lower costs and accelerated schedules through utilization of pre-existing work from other sites. Optimally, the NEPA action will permit chemical processing of SNF through H Canyon on a not-to-interfere basis as long as the H-Area facilities are operating for plutonium disposition.
- **Chemical Processing of SNF:** This alternative will continue chemical processing in H Canyon on a not-to-interfere basis until plutonium processing is complete. Ultimately, a “new generation” disposition facility is required to address on-going SNF generation. For this alternative, continued chemical processing could be provided through a hot cell added to the alternate plutonium disposition facility. This option depends on the ability to disposition the bulk of the legacy SNF through H Canyon to minimize the required throughput and cost of the hot cell
- **Melt and Dilute of SNF:** This alternative will construct a stand-alone facility that will employ the melt and dilute technology to provide for disposition. This alternative will build on the significant technology validation work that has already been completed, results in a significant volume reduction for SNF waste, and already has a license application.

**Current Baseline:** The current baseline provides for the on-going operation of L-Basin as the primary SNF receipt facility for off-site SNF returns through 2035. All Foreign Research Reactor (FRR) receipts will be complete by 2009. Domestic Research Reactor (DRR) receipts will continue through 2035. Canada returns are limited by the current baseline to less than 20 total shipments. Before suspension, the melt and dilute technology validation was well underway and scheduled for completion in FY03. This schedule would have supported a FY09 startup of the SNF TSF. Design, construction, and startup of TSF are currently in DOE's Integrated Planning and Budget System (IPABS).

**Initiative Benefits:** This initiative will utilize current H Canyon capabilities to maximize SRS opportunities for commencing disposition of SNF without impact to other missions. H Canyon processing accelerates the start of SNF disposition from FY09 to as early as FY03. Integration with on-going material processing makes this the low-cost approach that begins immediate disposition of SNF and accelerates residual risk reduction associated with the SRS SNF storage inventory.



The just-in-time approach to basin capacity improvements is based on real time needs and captures changes in actual receipts and optimized H-Canyon operations which may negate the need for all, or part, of the improvements. The just-in-time strategy will ensure costs are minimized, while maintaining the single basin strategy, providing support of national programs, focusing SRS resources on risk reduction, and further enhancing Homeland Security through reduced security perimeters.

Defining the legacy SNF as that received at SRS by 2009 appropriately bounds the EM cleanup initiative and appropriately links the responsibility and cost for disposition of future SNF to the sponsoring DOE offices that produce them.

Accelerated H-Canyon disposition and L-Basin capacity management enable the deferral of approximately \$1 billion in SNF disposition lifecycle costs that can be utilized in higher risk areas until an integrated disposition strategy for SNF is developed. This integrated strategy will identify and validate new disposition technologies (such as co-disposal) and will leverage complex-wide initiatives for application at SRS, providing a more cost-effective and consistent approach to disposition. SRS proposes to provide technical input and support of the NEPA process for SNF.

**Prerequisites to Success:** Full success of this initiative is dependent on the required NEPA action that supports the use of chemical separation as an authorized disposition path for processing FDD/DRR in H Canyon on a not-to-interfere basis at a sufficient level to maintain the one spent fuel basin strategy. This also assumes there will be no Idaho National Engineering and Environmental Laboratory (INEEL)/SRS fuel swap. It is this accelerated disposition in H Canyon and just-in-time approach to L-Basin storage capacity that enables the deferral of approximately \$1 billion in SNF disposition lifecycle costs that can be utilized in higher risk areas, until an integrated disposition strategy for the remaining SNF is developed. Further success will be gained through coordination of the SNF NEPA actions with those required for plutonium disposition to permit selection of the optimized final SNF disposition path. Extensive chemical processing of research reactor fuels will require either extension of the TVA agreement or development of a similar agreement with another company to continue the final step in SNF disposition.

**Schedule:** Processing of SNF in H Canyon could begin as early as FY03 and required NEPA actions should be targeted for completion prior to December 31, 2002.

**Funding Requirements FY03 – FY08 (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined.

	FY03
Initiative Cost Estimate <sup>2</sup>	21
Cost Reduction Challenge	(6)
Net Funding Request	15

<sup>2</sup> The budgetary estimates provided herein are planning estimates for the cleanup phase as delineated in DOE G 430.1-1.

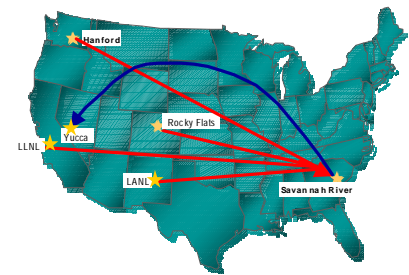
Funding requirements to support the selected final disposition of legacy SNF will depend upon the outcome of NEPA actions and the integration of the SNF disposition with disposition of other legacy materials. The following chart shows the lifecycle cost for this initiative.

**Performance Metrics:** Performance would be tracked against SRS ability to receive and store identified inventory and against identification of available storage capacity to satisfy expected offsite receipt requirements.



## Nuclear Materials Program

### Initiative Title: MM-3(C), Optimize Disposition of Complex-Wide Plutonium Bearing Materials



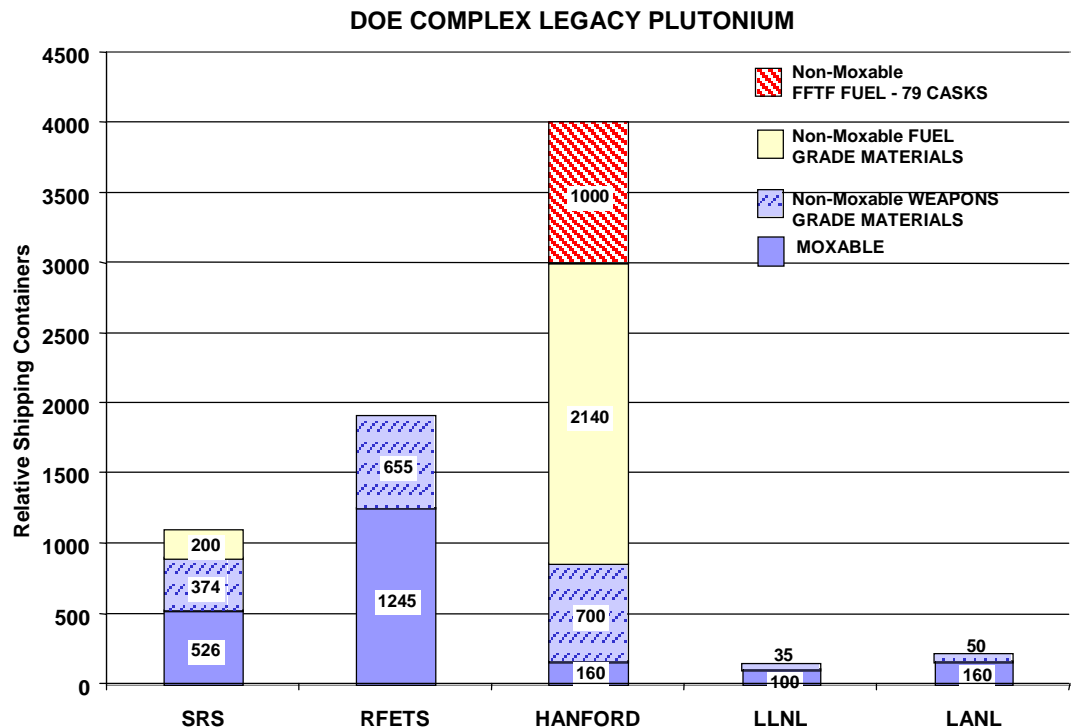
**Initiative Description:** SRS proposes that the EM Program accelerate the movement of plutonium bearing materials from across the Complex to SRS to await disposition. SRS storage facilities (particularly KAMS) will be modified to increase the number of storage positions and provide additional storage flexibility. A capability will be needed for disposition of non-MOXable (MOX - mixed oxide) materials. A supplemental EIS to select the preferred approach needs to be completed in 2003.

**Current Baseline:** The existing baseline for storage, treatment and disposition of EM's approximately 12 metric tons of legacy plutonium bearing materials was altered by the decision to cancel the Immobilization Facility. The cancellation has left many materials without a clear disposition path and could lead to significant schedule / cost impacts at Rocky Flats and Hanford. Many of the items that need to be shipped from Rocky Flats to support that site's de-inventory were previously scheduled for immobilization. Hanford's de-inventory plan for the plutonium storage vaults was tied to a just-in-time delivery to the Immobilization Facility. SRS H-Area processing facilities are currently scheduled to complete stabilization activities by 2006 and HEU Blend Down activities by 2008.

**Initiative Benefits:** This initiative provides a 'plutonium path forward' that satisfies the needs for a clear disposition of materials to be sent to SRS. The path forward also supports the Mixed Oxide (MOX) non-proliferation mission without disrupting other critical DOE programs (e.g., Rocky Flats de-inventory and HEU Blend Down). The return on investment from consolidated storage is estimated to be less than two years considering the extensive costs of delaying Rocky Flats de-inventory, the savings from accelerated de-inventory of vaults at Hanford, and the security savings associated with consolidating storage at SRS. The Complex-wide footprint of plutonium storage facilities will be reduced and critical storage challenges at the national labs will be resolved through this initiative. Homeland Defense will be enhanced by reducing the number of target facilities, and increasing the ability to focus security resources on the remaining facilities.

**Prerequisites to Success:** The Department has completed the revision of the NEPA ROD to address the cancellation of Immobilization. A supplemental EIS to select the preferred approach for disposition of non-MOXable Pu needs to be completed in 2003. Safe Secure Transport (SST) availability needs to be increased to support consolidation. In addition, key decisions are required to support execution of this proposal, which also represents opportunities for improvement. These are described in the last segment of this initiative description.

For non-MOXable materials a specific disposition path (treat to make MOXable, discard to the WIPP, discard to HLW processing at SRS, or disposition via MOX after the current 10 year campaign) needs to be defined. The figure below provides the relative distribution of legacy plutonium bearing materials currently in storage (Pantex is excluded). Decisions related to specific disposition paths need to consider all of these materials.



Modifications to KAMS will be completed in time to allow consolidation of complex-wide material at SRS by the end of FY06. The supplemental Pu Disposition EIS decision to be made in 2003 will establish the schedule for the new capability needed for non-MOXable materials.

Likely candidates for disposition of non-MOXable Pu include:

- **Small Aqueous Processing Facility:** This alternative will construct a stand-alone aqueous facility capable of dissolving and processing various forms of both weapons-grade and fuel-grade plutonium bearing materials including approximately 1,000 units in 73 casks of unirradiated Fast Flux Test Facility (FFTF) fuel. This facility will include the capability to provide final disposition of the resulting waste stream without relying on the DWPF in the outyears.
- **Multi-Purpose Aqueous Processing Facility:** This alternative will construct a stand-alone multi-purpose facility capable of dissolving and processing excess materials from across the complex, including receiving and dismantling weapons pits. This facility will have the capability of producing plutonium in either metal or oxide form and could ultimately replace the plutonium-processing portion of the Pit Disassembly and Conversion Facility (PDCF).
- **3013 in HLW Canisters:** This alternative places 3013 containers in a HLW canister while empty. DWPF operations fill the canister with vitrified HLW, effectively entombing the 3013 containers in glass. Execution of the current baseline will stabilize approximately 1,000 items of SRS plutonium into 3013 containers by 2005. By 2006 we will also complete receipt of excess materials from the complex. This alternative requires modification of the DWPF facilities to handle 3013 containers including contamination control in the event of canister failure and security requirements for protection of materials prior to immobilization. Technical issues require

the resolution of 3013 interaction with molten glass (possible can rupture), determination of the number of cans which can be loaded into each DWPF canister, and qualification of the entombed 3013 containers for storage in the Federal Repository. Some processing of the FFTF material will be required to place this material into 3013 containers.

- **Direct Vitrification in HLW Glass:** This alternative will install a dissolver co-located with DWPF and provide direct injection of the dissolved material either directly into the DWPF glass stream or through an adjunct melter operation. One advantage to this alternative is that the dissolver could be sized to permit direct processing of plutonium fuel materials. This initiative could begin upon completion of dissolver construction and required support modifications. Support modifications include DWPF upgrades for increased temperatures required for vitrification of plutonium, improvements in the off-gas systems for volatile materials (e.g., cesium), an injection path for the dissolved solutions, and security upgrades for material handling prior to vitrification. Technical issues require resolution of the effects of the injected stream on the DWPF glass, assurance of a critically safe configuration, determination of maximum plutonium loading in the canister, and qualification of the resulting glass log for acceptance to the federal repository.

**Funding Requirements FY03 – FY08 (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined.

MM-3	FY03
Initiative Cost Estimate <sup>3</sup>	43
Cost Reduction Challenge	(9)
Net Funding Request	34

MM-3(C)	FY03
Initiative Cost Estimate	0
Cost Reduction Challenge	0
Net Funding Request	0
Safeguards & Security Costs	0

<sup>3</sup> The budgetary estimates provided herein are planning estimates for the cleanup phase as delineated in DOE G 430.1-1.

**Performance Metrics:** Plutonium shipments, receipts, and processing rates (alternative disposition of non-MOXable items) will be tracked. In addition, project milestones and cost performance will be measured when the scope and baselines are defined.

## Solid Waste (SW) Program

### Program Description

The mission of the SW program is to provide cost-effective solid waste management services to support DOE missions at SRS and across the DOE-Complex. The program provides treatment, storage and disposal capabilities required for SRS to safely store, treat and ultimately dispose of both legacy wastes and newly-generated wastes which arise from operations at SRS. The program is responsible for reducing the legacy waste inventory of all the waste types to zero and therefore obtaining a steady-state condition with ongoing waste being treated and disposed as it is generated. The five types of waste managed by this program include sanitary waste; low-level radioactive waste; hazardous waste; mixed waste (both hazardous and radioactive); and TRU waste (solid waste contaminated with alpha-emitting TRU radionuclides that result primarily from the Canyon and analytical laboratory facilities at SRS).

Sanitary waste is a solid waste that is neither radioactive nor hazardous. Sanitary waste typically consists of materials that would be received by a municipal sanitary landfill and contains salvageable or recyclable materials such as scrap metal.

Low-level waste is radioactive waste that is not classified as high level waste, TRU waste, spent fuel, or byproduct material and does not contain any hazardous waste. Typically, low-level waste at SRS is radioactively contaminated materials such as job-control waste, small and large equipment, plastic sheeting, gloves, soil and suspect contaminated materials used in a radiological areas.

Hazardous waste is identified by the EPA and requires management in accordance with specific regulatory mandates. The SW program receives, stores and arranges off-site treatment or disposal for SRS-generated hazardous wastes. Examples of hazardous waste include materials such as lead, solvents, paints and pesticides.

Mixed waste is both hazardous and radioactive waste, includes solvent-contaminated wipes, debris from operations, cleanup, construction, etc. from radiological areas. The SW program is responsible for receipt, interim storage, treatment and disposal of mixed waste. Treatment is performed at SRS facilities, at other DOE sites or commercial vendors. Disposal activities include identifying a disposal facility, characterizing for disposal, and preparing waste to transport and shipping.

TRU waste is contaminated with alpha-emitting TRU radionuclides that meet very specific criteria. Some TRU waste at SRS contains hazardous waste and must be managed in accordance with regulatory requirements. These wastes are and have been generated primarily by plutonium separations facilities and analytical laboratories. Additionally, some of the TRU waste at SRS is from offsite generators in the late 1970s. The TRU waste program has historically focused on the acceptance and maintenance of safe storage. However, the program is moving forward with shipping the TRU waste to DOE's WIPP in Carlsbad, NM.

The treatment, storage and disposal of sanitary, hazardous, mixed and mixed-TRU wastes are subject to regulation by EPA and SCDHEC in accordance with the Resource Conservation and Recovery Act (RCRA). The site has regulatory commitments concerning treatment of legacy wastes for these waste streams. These commitments are con-

tained in the Site Treatment Plan, which was developed in response to a consent order. In addition, current RCRA regulations provide specific timescales for treating newly-generated wastes.

The treatment, storage and disposal of low-level waste is subject to the provisions of DOE Order 435.1, which establishes specific timescales for the disposal of newly-generated wastes.

## Solid Waste Program

### Initiative Title: WM-3, Expedite TRU Waste Shipments to the WIPP

**Initiative Description:** Accelerate Risk Reduction by expediting TRU Waste shipments to WIPP and eliminating long term SRS storage associated with a significant inventory of radioactive waste. This is to be accomplished by providing enhanced characterization, re-packaging, certification, and loading capability at SRS. The characterization and certification capability will be deployed at SRS by the National TRU program as part of the Transuranic Waste Performance Management Plan, with the remaining TRU processing capabilities provided by SRS. The two acceleration proposals (WIPP and SRS) are fully integrated. It will also be necessary to enhance the payload capability of the existing TRUPACT-II units to permit the shipment of higher gram quantities of TRU waste to WIPP. This proposal will bring the end state forward to 2009 for low-activity drum waste in contrast to the current 2034 baseline. The life-cycle savings for this initiative is approximately \$800 million.



**Current Baseline:** The current baseline calls for shipping 4,900 cubic meters of low-activity TRU waste to WIPP by 2034. The baseline shipping schedule for this waste is: 12 TRUPACT-II shipments (504 drums) per year through 2014 and 24 shipments per year (1,008 drums) through 2034. This schedule is based on the un-accelerated National TRU Program Plan with priority on closure sites such as Rocky Flats and Idaho. In addition to the currently planned baseline shipments, approximately 3,000 drums of TRU waste must be moved to WIPP in order to support the shipments of TRU Waste from the Mound Facility to SRS for interim storage and future processing. These 3,000 drums are planned to be shipped by March 2003. It is assumed that sufficient TRUPACT-IIs are available in 2003, after Idaho meets an initial shipment milestone to support the accelerated schedule. This assumption is also consistent with WIPP's Transuranic Waste Performance Management Plan to increase its capacity to receive 34 shipments per week.

**Initiative Benefits:** By providing enhanced characterization, repackaging, certification and additional TRUPACT-II loading capability, the Site can accelerate the cleanup of low-activity drum waste at SRS by nearly 21 years, thereby accelerating risk reduction and reducing cost for storage and processing by approximately \$800 million. The accelerated program is directed at ~ 24,000 drums of Pu-239 waste and low-activity Pu-238 waste and ~ 480 polyethylene (poly) boxes. The accelerated plan will ship this inventory of TRU waste drums to WIPP by the end of FY09. To achieve the acceleration goal, SRS will ship approximately 4,000 drums per year, roughly eight times the current TRU Program baseline shipping schedule.

**Prerequisites to Success:** The following activities will be required to implement this accelerated program:

- Capital investment in SRS to augment existing TRU processing facilities and provide new drum repackaging and drum sort/segregate capability based on Los Alamos National Laboratory (LANL) glovebox system.
- Additional facility upgrades to SRS facilities to provide aerosol can puncturing, liquid stabilization, handling and transport equipment, and a loading system for transport.
- Deployment of enhanced characterization equipment at SRS by National TRU program, including Pu-238 assay capability.
- Provision of culvert-opening capability.
- Electronic Data Collection, characterization, certification interface for National TRU program characterization program with WIPP.
- Safety basis and regulatory development, procedures, training for new capability.
- Enhanced TRUPACT-II payload capabilities.

**Schedule:** Procurement and project activities begin in 2003 in order to sustain 4,000 drums per year in the outyears. The 24,000 drums and 480 poly boxes identified are processed and shipped between 2003 and the end of 2009.

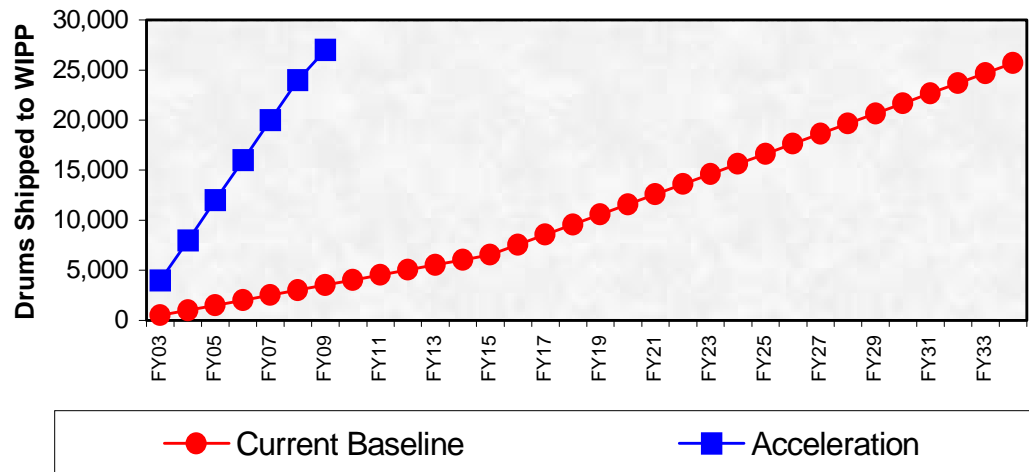
**Funding Requirements (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined.

	FY03
Initiative Cost Estimate	11
Cost Reduction Challenge	(3)
Net Funding Request	8

Note: The funding values will be fully integrated with the TRU Waste Performance Management Plan, such that there is no scope which is repeated in both proposals.



**Performance Metric:** The main objective of this initiative is to accelerate the disposition of legacy waste and reduce the risk from long-term storage. The performance metric will be to measure that acceleration in number of shipments against the baseline schedule.



## Solid Waste Program

**Initiative Title:** WM-4, Accelerate Risk Reduction through Expedited Management of High-Activity TRU Waste



**Initiative Description:** Accelerate risk reduction by providing early funding and a modular approach for the TRU facilities to process and/or treat the high-activity Pu-238/Pu-239 waste and bulk containers. Capital funding for all activities including design, construction and startup activities is to be provided in the FY04–FY08 time frame. As opposed to the original concept of a large Hazard Category 2 facility, the accelerated approach will include the use of existing facilities at SRS for infrastructure and the major containment structure. The initiative also includes fit-for-purpose modular design concepts for certain activities (storage of containers waiting processing) and the possible use of existing Remotely Operated Size Reduction System (ROSRS) obtained from Rocky Flats for processing large bulk equipment or other new technology for organic destruction, such as the Studsvik steam reforming process. This, combined with the anticipated operation of a rail transport program and new TRUPACT-III transporter, will allow SRS to accelerate the end state date from the proposed 2024 date to 2013, thus realizing a life-cycle savings of approximately \$890 million.

**Current Baseline:** The current baseline plans call for the design and construction of a Hazard Category 2 facility to process and treat the high-activity portion of the TRU waste legacy containers and large bulk equipment. The project is scheduled for authorization in FY05 with design and construction running through FY15. Operations would commence in 2015 through 2024. This facility would process ~ 5,400 m<sup>3</sup> of drums and boxes. It would include facilities for culvert opening and drum removal, sorting and repackaging and possible treatment for shipment to WIPP. It would also have the capability to open black boxes and remove the large equipment; size-reduce, as necessary; and repack in standard waste boxes. Other odd shaped containers such as concrete casks and manipulator tubes would also be handled in this facility. Rail and truck transport loading facilities would also be included. Expected Total Project Cost (TPC) was projected to be \$453 million, with operating costs additional to this.

**Initiative Benefits:** By abandoning the large capital line item project strategy and accelerating the funding for this modular concept utilizing existing facilities, the higher activity and bulk waste will be shipped to WIPP on an accelerated schedule. This action results in a significant risk reduction of stored material at SRS by addressing the higher activity material at an earlier date. It moves the end state for TRU waste at SRS from the projected 2024 to 2013, an additional 11-year acceleration. This program is directed at ~ 5,400 m<sup>3</sup> of high activity Pu-238/Pu-239 waste, including the large bulk equipment stored in black boxes, casks and other containers. This accelerated plan will ship this approximately 80% of this inventory of TRU waste to WIPP in the new TRUPACT-III transporter via either rail or truck, with the remaining 20% undergoing significant repackaging or treatment. The new TRUPACT-III having the capability to transport large boxed waste, could be in operation as early as 2005, which

easily supports an FY08 date needed to support this accelerated schedule and has the potential to significantly reduce the amount of processing necessary to prepare bulk waste for shipment. The lifecycle saving for this initiative is approximately \$890 million.

**Prerequisites to Success:** The following activities will be required to implement this accelerated program:

- Capital investment at SRS to provide modular high-activity TRU waste processing capability, including expedited line item approval to support initiation in FY04
- Upgrades to existing facilities to provide infrastructure for these processing systems
- Effective utilization of less expensive modular designs for certain activities (e.g., Dufrane modular storage units)
- Assumes that the existing ROSRS can be utilized without major re-engineering (size reduction, repackage modules)
- Availability of TRUPACT-III containers

**Schedule:** This initiative is based on an assumption that multiple project activities begin in 2003 with the facility operational in 2009. The 5,400 m<sup>3</sup> is processed and shipped to WIPP by the end of 2013.

**Funding Requirements (\$ million)<sup>4</sup>:** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined.

	FY03
Initiative Cost Estimate	0
Cost Reduction Challenge	0
Net Funding Request	0

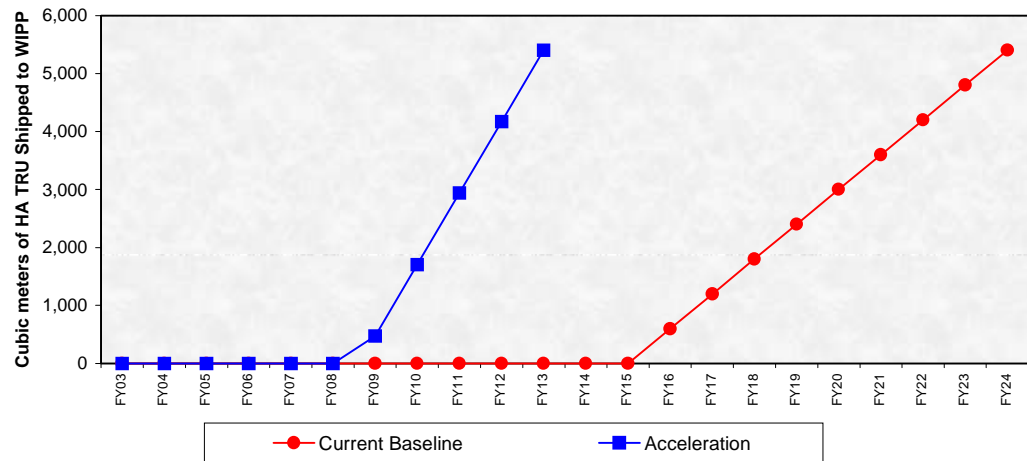
For ease of reference the funding requirements for both WM-3 and WM-4 are presented below as a combined total to achieve the total acceleration of the TRU program at SRS.

	FY03
Initiative Cost Estimate	11
Cost Reduction Challenge	(3)
Net Funding Request	8

Note: The funding values will be fully integrated with the TRU Waste Performance Management Plan, such that there is no scope which is repeated in both proposals.

<sup>4</sup> The budgetary estimates provided herein are planning estimates for the cleanup phase as delineated in DOE 54301-1.

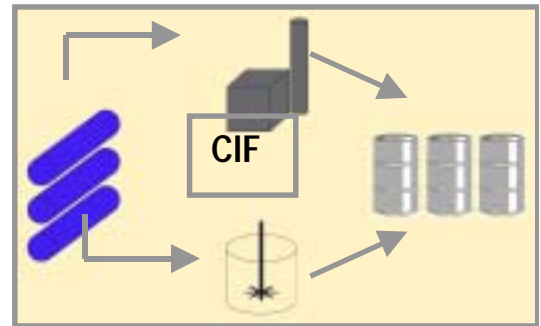
**Performance Metrics:** The main objective of this initiative is to accelerate the disposition of legacy waste. The performance metric will be to measure that acceleration against the baseline schedule.



## Solid Waste Program

### Initiative Title: WM-5, Cost Effective/Risk-Reducing Alternative to Incineration for PUREX Waste

**Initiative Description:** Implementation of a new stabilization technology for treatment of PUREX waste will significantly reduce risk by accelerating the treatment of the PUREX waste 10 years sooner than the current commitment. It will also accelerate the decommissioning of the CIF from FY35 to FY09 and provide a solution for F Canyon PUREX not covered in the baseline. This initiative will produce a lifecycle saving of \$85 million by completing these activities nearly 25 years ahead of the assumed FY35 EM end state in the baseline.



**Current Baseline:** The current treatment for the PUREX waste is incineration. CIF will be restarted and incinerate the aqueous and organic phases of PUREX waste to meet the current Site Treatment Plan commitment of FY19. Surveillance and maintenance of the CIF facility continue to FY35 and beyond. The lifecycle cost of using the CIF to treat the PUREX waste and for continued surveillance and maintenance of the facility through an FY70 end state is \$450 million.

**Initiative Benefits:** The early treatment facilitated by this alternative technology reduces the inherent risk from long-term storage of 25,000 gallons of legacy organic PUREX, 12,000 gallons of legacy aqueous PUREX, and approximately 60,000 gallons of F-Canyon PUREX waste in underground tanks. Treatment will be done in three phases. The aqueous portion (12,000 gallons) will be treated at the Saltstone Facility in FY03. The remaining organic legacy PUREX waste (25,000 gallons) will be stabilized using a commercially available product in a new facility. This is a low complexity process with a high probability of success. Following disposition of the legacy organic PUREX, the F-Canyon organic PUREX waste (~60,000 gallons) will also be treated in the new facility. The ease of implementation will allow legacy waste removal from the tanks by FY09, ahead of the original Site Treatment Plan (STP) commitment of FY19.

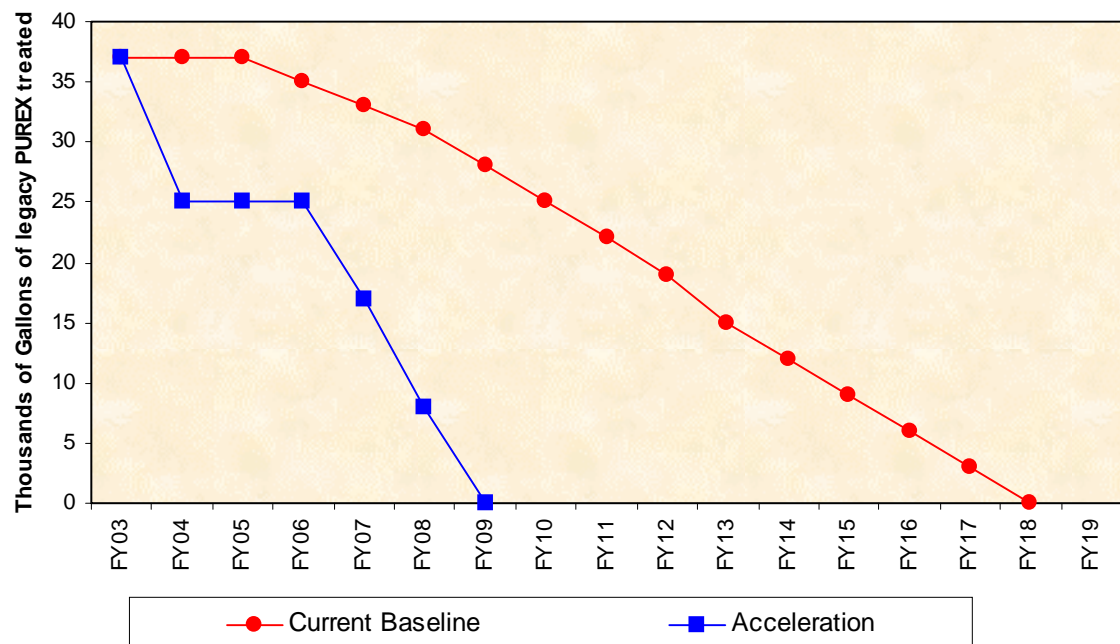
**Prerequisites to Success:** There is no existing facility at SRS with the capability of stabilizing the organic PUREX waste. A new general plant project is required to provide a stabilization facility for treatment of this waste. Since the organic PUREX waste is a RCRA hazardous waste, this facility will need a treatment permit issued by SCDHEC. The new stabilization technology is a low complexity process with little technical uncertainty. This stabilization process is an alternative technology to incineration, and has a high probability of obtaining all the necessary regulatory permits.

**Schedule:** This initiative is based on the assumption that project activities begin in 2003. The 12,000 gallons of aqueous PUREX is treated in FY03 at Saltstone facility, the 25,000 gallons of organic legacy PUREX is treated by the end of 2007 in a new stabilization facility, and the F-Canyon waste is treated by end of 2009.

**Funding Requirements: (\$ million)<sup>5</sup>:** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remain to be determined.

	FY03
Initiative Cost Estimate	1
Cost Reduction Challenge	0
Net Funding Request	1
Long-Term Stewardship	0

**Performance Metrics:** The main objective of this initiative is to accelerate the disposition of legacy waste, thereby reducing the inherent risk from long-term storage. The performance metric will be to measure that acceleration against the baseline schedule.



<sup>5</sup> The budgetary estimates provided herein are planning estimates for the cleanup phase as delineated in DOE 54301-1.

## Environmental Restoration (ER) Program

### Program Description

The ER program mission is to investigate inactive waste sites and groundwater units and, if needed, remediate releases of hazardous substances to minimize or eliminate potential risks to human health or the environment. Remediation of waste sites is regulated by RCRA and CERCLA. In 1993, SRS entered into the a legally binding cleanup agreement, the Federal Facility Agreement (FFA), with the SCDHEC and the EPA, which lays out the schedule for remediating the inactive waste and groundwater units.

There are currently 515 inactive waste and groundwater units in the SRS ER program. The waste units vary in size from a few square feet to tens of acres and include basins, pits, piles, burial grounds, landfills, and tanks. The contaminated groundwater plumes are substantially larger and range up to as much as 1,600 acres. Although soils, groundwater and surface water have been impacted by radionuclides and hazardous chemicals as a result of over 50 years of operations, mitigating actions have helped to limit the contamination to local areas and to reduce any current, significant offsite risk. An assessment of the human health and environmental risks associated with each waste site is conducted to determine the cleanup priority, where focus is placed on the highest risk first. Additionally, as facility dispositioning is performed, the impact to waste sites and the surrounding environmental medial will be assessed for appropriate actions.

If preliminary evaluations show that a waste unit may be a candidate for cleanup, an investigation and site characterization are conducted. If the investigation determines that there is a risk to human health or the environment, cleanup alternatives are evaluated, selected and implemented. Currently, of the 515 identified SRS units that require evaluation, 306 have been closed or are in remediation, while 340 of the 500 total acres requiring remediation have been or are being remediated. There are 11 groundwater contamination areas with treatment systems actively remediating the groundwater contamination at eight of these site areas.

With support from the regulatory agencies, SRS deploys state-of-the-art technology to increase remediation effectiveness and efficiency. By using remediation techniques such as vacuum extraction, a process that removes solvents from the soils above the groundwater, SRS has been able to reduce the potential for more groundwater contamination, as well as reduce cleanup cost and expedite cleanup, while protecting human health and the environment. Another technology SRS has successfully deployed involves using nature in remediation. For instance, phytoremediation, the technique of using natural processes occurring in vegetation, is being used to mitigate contamination in groundwater.

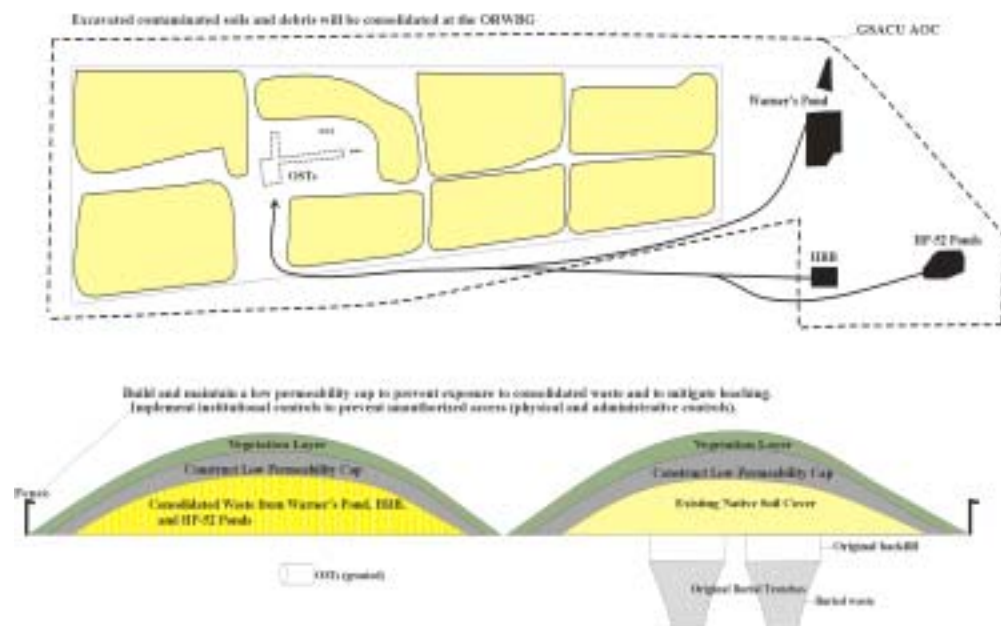
The following strategic initiatives, REM-1, Accelerate Closure of the Old Radioactive Waste Burial Ground; REM-2, Accelerate Contaminant Reduction in Fourmile Branch Stream; and REM-3, Accelerate Risk Reduction Through Innovative Technologies and Improved Regulatory Processes, will enable additional streamlining in this program.



## Environmental Restoration Program

### Initiative Title: REM-1, Accelerate Closure of the Old Radioactive Waste Burial Ground

**Initiative Description:** This cleanup reform initiative prioritizes the reduction of risk by consolidating, integrating, and accelerating the remediation of five high risk SRS-ER waste sites. The improved end state is achieved by excavating and consolidating 33,500 cubic meters of higher level radiologically contaminated soils and materials from four nearby waste units onto the ORWBG. The excavated sites will be backfilled with clean soil and protected by a simple soil cover and institutional controls while any residual radioactivity decays. Following in-place closure of the 22 old solvent tanks (OSTs) which are located within the burial ground and the consolidation of the excavated soils, a low permeability cap will be constructed over the ORWBG and protected by institutional controls. This initiative affords significant cost savings and avoidance as well as significant remediation acceleration.



The following primary project elements will be implemented to effect closure of the five waste units:

- Excavate and consolidate the highest level radioactive soils from H-Area Retention Basin (HRB), Warner's Pond (WP) which includes a coincidental portion of the H-Area Inactive Process Sewer Lines, and the HP-52 Pond (HP-52) onto predetermined locations within the ORWBG.
- Close HRB, WP, and HP-52 sites with a simple backfill cover.
- Close the ORWBG, including the OSTs and the materials from the other sites, with a low permeability cap.
- Maintain institutional controls for all units.
- Perform groundwater remediation in the ORWBG region under a RCRA permit.



Activities Planned in FY03 include the following:

- Develop and obtain approval of the final CERCLA ROD for the ORWBG surface unit.
- Develop preliminary and definitive designs.
- Complete field investigation to validate extent of contamination in WP and HP-52.
- Develop and obtain post-ROD document approval for scope of work.
- Complete the in-place closure of the OSTs.

**Current Baseline:** Each of the waste sites is addressed as a separate remediation project in the SRS-ER program baseline. For HRB, WP, and HP-52, the remediation involves off-SRS disposal and/or in-situ treatment of Principle Threat Source Material (PTSM). For the ORWBG and OSTs, the remediation assumes in-place closure could be agreed to by the two regulatory agencies. Each of the projects will have a separate programmatic scope, cost, and schedule baseline. Each is a separate operable unit in the SRS FFA with separate implementing schedule milestones. The current cost baseline is shown in the table below. The current schedule baseline shows a collective completion date in late 2010.

**Current Baseline (\$ million):**

SITE	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10
HRB	0.5	3.0	6.0	4.5	1.0	0.0	0.0	3.0
WP	1.0	1.0	0.0	0.5	1.0	3.0	7.0	3.5
HP-52	2.0	0.5	0.0	1.0	3.5	6.0	3.0	0.0
ORWBG	5.0	5.5	0.5	0.0	0.0	0.0	0.0	0.0
TOTAL	8.5	10.0	6.5	6.0	5.5	9.0	10.0	6.5

This baseline includes \$18 million that would be required for off-site and/or in-situ disposal costs that are not currently in IPABS for HRB, WP, and HP-52. This total does not include \$9 million for contingency that is included in IPABS.

**Initiative Benefits:**

- Closure of the highest risk unit in the ER program, i.e., the ORWBG
- Results in significant worker risk avoidance by leaving the ORWBG buried waste and contaminated soil (approximately 600,000 curies) in place for closure
- Results in an estimated cost avoidance of \$150 million (\$132 million avoided by reaching agreement to dispose of the long-lived burial ground waste and the OSTs in place, and \$18 million for consolidating the other four projects into the ORWBG closure)
- Removes mobile contaminants from HRB, WP, and HP-52, thereby reducing risk to adjacent streams and limiting post closure groundwater monitoring, at a savings of \$1.4 million

- Eliminates multiple sets of regulatory documents for estimated savings of \$3.6 million
- Achieves over 99% risk reduction from the four waste site cleanups for the public and the industrial worker
- Reduces the overall projects' completion schedule by two years
- Beneficially reuses the consolidation soils, in lieu of clean fill material, to achieve the final lines and grade for the construction of the ORWBG closure cap

**Prerequisites for Success:**

Regulatory agreement for consolidation and reduction of regulatory documents.

*This project has strong regulatory support as evidenced by an Agreement in Principle, dated 1/26/2001 and signed by the EPA and SCDHEC to support the project.*

Regulatory agreement to leave the burial ground waste in place and proceed with the consolidation project.

*The two regulatory agencies have approved the Corrective Measures Study/Feasibility Study and the Statement of Basis/Proposed Plan in FY02.*

**Schedule:**

**FY03** **Current Separate Unit Remediations** **FY10**

**FY03** **Accelerated Consolidation Schedule** **FY08**

Schedule acceleration » three years for WP and HP-52.

**Funding Requirements (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remain to be determined.

	<b>FY03</b>
Funding Request	3.5

**Performance Metrics:** The performance on project will be tracked using standard cost and schedule measures in accordance with DOE Order 413.3.

## Environmental Restoration Program

### Initiative Title: REM-2, Accelerate Contaminant Reduction in Fourmile Branch Stream

**Initiative Description:** This initiative achieves substantial risk reduction in Fourmile Branch by 2007. There are currently exceedances in the stream for uranium, cobalt, iodine-129, radium-226, strontium-90, vanadium and tritium from groundwater discharges associated with the Mixed Waste Management Facility and the F- and H-Area Hazardous Waste Management Facilities. The proposed technologies for this initiative are base injection and phytoremediation with spray irrigation.

- Base injection consists of pumping alkaline solutions into the subsurface to raise the aquifer pH. This action will change the low pH condition in the aquifer that is mobilizing contaminants. The result will fix many contaminants in place and prevent their migration to the stream.
- Phytoremediation with spray irrigation provides a system to manage the precision extracted groundwater by irrigating two hundred acres of forest. This action significantly reduces aquifer recharge by limiting the volume of re-injected water. The irrigated groundwater will be evapo-transpired at levels below National Emission Standards for Hazardous Air Pollutants (NESHAPs) values.

This initiative will substantially reduce, and possibly lead to the elimination of, the current pump, treat, and re-inject remediation systems, and thereby reduce the cost of this RCRA permitted remediation while accelerating risk reduction to the public.

#### Current Baseline\* (\$ million):

	FY03	FY04	FY05	FY06	FY07	FY08
Funding Request	3.6	5.5	2.2	1.5	2.1	1.5

**Initiative Benefits:** This initiative will implement two innovative technologies to reduce the overall contaminant concentrations in Fourmile Branch to regulatory standards maximum contaminant limits (MCLs). Accelerated implementation of this project will achieve an 80% reduction in risk to human health and the environment in Fourmile Branch and reduce the contaminant flux to the Savannah River three years ahead of the current schedule.

**Prerequisites to Success:** The state regulators must approve the SRS RCRA Part B Corrective Action Plans associated with this work. The corrective action plans are currently under review by SCDHEC. Due to previous successes in smaller scale field implementation of these technologies, there is a high probability of receiving regulatory approval.

\* Annual operating cost for the pump and treat systems are approximately \$10M/year. This cost is not included as part of the project baseline and is the cost that is targeted for elimination.

**Schedule:**

FY03 **Current Tritium Schedule** FY12

FY03 **Accelerated Tritium Schedule** FY08

FY03 **Current Metals Schedule** FY08

FY03 **Accelerated Metals Schedule** FY07

**Funding Requirements (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined.

Future funding requirements will reflect the estimated cost to develop, construct and start-up an alternate remedy to replace the current groundwater treatment units.

	FY03
Funding Request	14.7

**Performance Metrics:** Performance will be measured against the calendar year 2000 average concentrations for tritium in Fourmile Branch at the mouth of the stream (monitoring station FM-6). Other contaminants will be measured downgradient from the project and compared to the September 2000 baseline concentrations established in the RCRA Permit (monitoring station FM-A7U). The goal is to achieve regulatory standards in the stream by 2007 for metals and by 2008 for tritium.

## Environmental Restoration Program

### Initiative Title: REM-3, Accelerate Risk Reduction Through Innovative Technologies and Improved Regulatory Processes

**Initiative Description:** This initiative accelerates risk reduction and reduces lifecycle cost for the ER program's more than 200 remaining cleanup projects by using innovative technologies and streamlined regulatory processes. Aggressive and efficient source cleanup will achieve low-cost monitoring end states or full closures by decades earlier than will traditional technologies. As examples, SRS has recently used two new technologies to accelerate remediation: Dynamic Underground Stripping (DUS) and Microenfractionation. In concert with an improved regulatory process, these and other innovative technologies will reduce the cost for the EM Program at SRS, and will meet regulator and stakeholder requirements. This stems from a key SRS imperative for the use of innovation in the Site's cleanup program.

The two technologies noted above are among many of the recently proven technologies that will be applied at different waste units across SRS. DUS removes and destroys solvent source Dense Non-Aqueous Phase Liquids (DNAPL) contamination in the vadose zone and groundwater. A recent DUS (a steam injection process) deployment at SRS extracted solvents 75 times faster than the pump and treat configuration operating within the remedial zone. The Microenfractionation, an enhanced bioremediation process, remediates surface soils on-unit which are contaminated with polychlorinated biphenyls, herbicides, and pesticides. The Microenfractionation process will eliminate the need to dispose of acutely hazardous waste at an off-site incineration facility. Each of these two technologies has been deployed at SRS, greatly accelerating cleanup schedules and reducing worker and environmental risk by 99%, while substantially cutting lifecycle cost. These aggressive source term cleanup projects also establish the basis for leaving low-risk, low-level residual contamination in place under long-term, inexpensive institutional controls. In other cases, aggressive source term cleanup is coupled with passive technologies to reduce risk and achieve final cleanup goals at the lowest cost possible. Natural remediation, or passive technologies, are low cost options. These include phytoremediation and monitored natural attenuation and are often selected as preferred remedial approaches for dilute fringe areas of contaminant plumes.

An acceleration of project schedules and reduced baseline costs is achieved by an improved regulatory process that employs a Core Team approach to make real-time decisions and streamline the document process. Core teaming with regulators has allowed the SRS environmental program to eliminate, reduce, or combine key regulatory decision documents. These actions result in a decreased cost for the assessment and decision phase of the process, as well as a significant reduction in the time it takes to begin cleanup for the respective projects. Further, the Core Team remedy decision process has resulted in the selection of remedies that are very appropriate for the risk levels, thus assuring favorable cost/benefit results.

Selected key projects that are proposed for acceleration as they yield significant risk reduction, and utilize innovative, cost effective remedies include:

Waste Unit(s)	Technology	Risk Reduction	Benefit
M Basin, A14 Outfall	Dynamic Underground Stripping	>99%	Shutdown existing pump and treat units before FY10, accelerating end states by decades
CMP Pits	Microenfractionation	>99%	In-situ source remedy, accelerates schedule by 5 years at substantial cost avoidance
488-D Basin	Geosynthetic Cover	>95%	Eliminate groundwater contaminant source, significant baseline cost reduction >\$10M, accelerate remediation by 4 years, reduce regulatory decision documents
C Burning Rubble Pits, D-Area Operable Unit, A/M Area	Enhanced Bioremediation for Groundwater Remediation	>90%	Innovative technology to promote Natural Remediation for a cost effective source remediation
P-Area Groundwater	Phytoremediation	>95%	Eliminate high-risk tritium and volatile organic compound (VOC) contaminated groundwater from discharging into Steel Creek
C-Area Groundwater	Soil Vapor Extraction at the source with active to passive systems	>95%	Eliminate VOC source in the vadose zone to facilitate Natural Remediation as a final action for groundwater

Combining the improved regulatory process with the increased deployment of innovative technologies will reduce the ER program's overall execution year and life-cycle cost, shorten schedules for the individual waste site projects, and accelerate completion of the overall environmental remediation program.

**Current Baseline (\$ million):** Project cost estimates assume current baseline technologies and the normal assessment/remediation schedules consistent with either RCRA or CERCLA projects. Budget as shown is without cost savings that will be derived from efficiencies due to technologies and the Core Team approach.

FY03	FY04	FY05	FY06	FY07	FY08
42.8	54.1	36.0	35.9	50.47	62.3

**Initiative Benefits:** Earlier risk reduction and lower cleanup costs (targeted at 13% over the average of all projects) will result from the use of innovative technologies and the Core Team decision-making process.

- Aggressive source remediation will allow several of the waste sites to reach a low-cost monitoring end state by decades earlier than planned.
- Aggressive source remediation can be coupled with passive technologies to reduce risk and accelerate final cleanup goals.
- Core Team achieves a streamlining of the decision-making process which shortens the time to begin cleanup work and results in most appropriate remedial solutions.

**Prerequisites to Success:** The regulators are committed to the Core Team process and support the development and implementation of innovative technologies. SRS has high confidence in executing the project efforts as exhibited from recent decisions supporting the successful DUS and Microfractionation deployments.

**Funding Requirements (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined.

	FY03
Funding Request	21.6

**Performance Metrics:** The performance will be assessed against the currently established and approved cost and schedule baselines for the respective cleanup project following project management principles consistent with DOE Order 413.3.

## Facilities Deactivation and Decommissioning (FDD) Program

### Program Description

The FDD program goal is to deactivate excess facilities and maintain these deactivated facilities in safe condition to minimize risk to workers, the public and the environment; and to decommission facilities, if justified by risk, economics, or DOE programmatic objectives.

The program is responsible for dispositioning the more than 200 SRS structures that have been identified as excess. These facilities range in size and complexity from small storage buildings to large nuclear reactors. Dispositioning is the process that begins once a decision is made that a facility is no longer needed to support SRS missions and the facility is declared excess.

The facility disposition process is broken down into four activities:

- 1) Shutdown/Transition is the process of terminating operations in a controlled manner, placing the facility in stable and known conditions, identifying hazards, eliminating or mitigating hazards, and transferring programmatic and financial responsibilities to the FDD Program.
- 2) Deactivation places a facility in a stable and known configuration by removing the chemical and radioactive materials, shutting down or mothballing the facility equipment and mitigating the hazards.
- 3) Safe Storage is the dormant period when Post-Closure Care and Maintenance activities occur to ensure the protection of human health and safety and the environment.
- 4) Decommissioning places a facility in its final end state and can include dismantlement, decontamination, or some other activity that makes the land available for either unrestricted use or for limited applications.

In addition to dispositioning those structures which have already been identified as excess, the program will disposition facilities as they are determined to be no longer necessary to support SRS missions. For instance, F Canyon, the RBOF and the CIF will be shutdown/transitioned into the disposition program as described in Strategic Initiatives in this PMP. The EM End State Plan will define the appropriate disposition activities to place these facilities in their appropriate end states. Additional funding to complete these facility disposition activities will be provided from the \$8 to \$12 billion life cycle savings that will result from accelerated cleanup.



## Facilities Deactivation and Decommissioning Program

### Initiative Title: DD-1, Accelerate Facilities Disposition

**Initiative Description:** Accelerate the demolition of virtually all currently inactive facilities outside the site's central core area by 2006. This will entail the removal of up to 72 facilities, with a footprint of 567,000 square feet (ft<sup>2</sup>), located in the T, D and M Areas, which are inactive with no defined or anticipated future mission. T and D Areas are located in a remote area near the Savannah River, and M Area is located in close proximity to the public domain. Removal of inactive facilities for which there is no planned reuse reduces the inherent risk to site workers, the public and the environment, as well as reducing the life-cycle cost to maintain them. This initiative is consistent with the SRS EM End State Vision (Section 3.1 of this PMP) to consolidate continuing National Security missions to the center of the site and decommission inactive facilities in the Environmental Research Park surrounding the central core area.

This initiative, along with the broader scope of the facilities disposition vision provided in Section 3 of this PMP, directly addresses recent criticism of the EM facilities disposition program:

The IG Audit Report, Disposition of the Department's Excess Facilities, dated April 2002, stated that DOE's excess facilities *"are deteriorating, causing the cost of performing surveillance and maintenance to increase while at the same time providing limited or no value to the mission of the Department's programs. As time passes, the potential for negative impacts to worker safety and the environment will continue to increase."* The results of the Top-to-Bottom Review of the EM Program, dated February 4, 2002, identified a *"systemic problem with the way EM has conducted its activities: the EM program's major emphasis has been on managing risk, rather than actually reducing risk to workers, the public, and the environment."*

**Current Baseline:** While the SRS Long Range Comprehensive Plan indicates that all but two facilities in the T, D and M Areas will be removed by the year 2020, the current baseline provides no budget or plan for their removal. The baseline for these facilities provides for their deactivation in the 2000 to 2006 time frame followed by long-term surveillance and maintenance until 2070 when eventual demolition will take place. The baseline life cycle cost for the facilities in the T, D and M Areas exceeds \$ 1 billion.

**Initiative Benefits:** This initiative, along with the broader scope of the facilities disposition vision provided in Section 3 of this PMP, changes the emphasis from managing risk to elimination of risk; significantly reduces the life cycle cost for these facilities; supports the SRS Comprehensive Plan objective to move all functions toward the center of the site; and supports the EM objectives of accelerated cleanup and footprint reduction. Specifically, this initiative will:

- Reduce life cycle cost by \$ 945 million
- Eliminate up to 72 facilities, with a footprint reduction of over 567,000 ft<sup>2</sup> through the most cost effective means, including approaches such as assets-for-services
- Eliminate risk associated with these facilities located in close proximity to the site boundary, rather than continuing to manage risk and accept the associated liability

**Prerequisites to Success:** The following activities will be required to implement this accelerated program:

- A significant planning effort will be required in FY03 to support activities planned for FY04.
- As appropriate, establishment of site specific site release criteria to define allowable residual contamination levels, and Multi Agency Radiation Survey and Site Investigation Manual (MARSSIM) survey methodology for final radiological verification will require DOE-HQ approval.

**Schedule:**

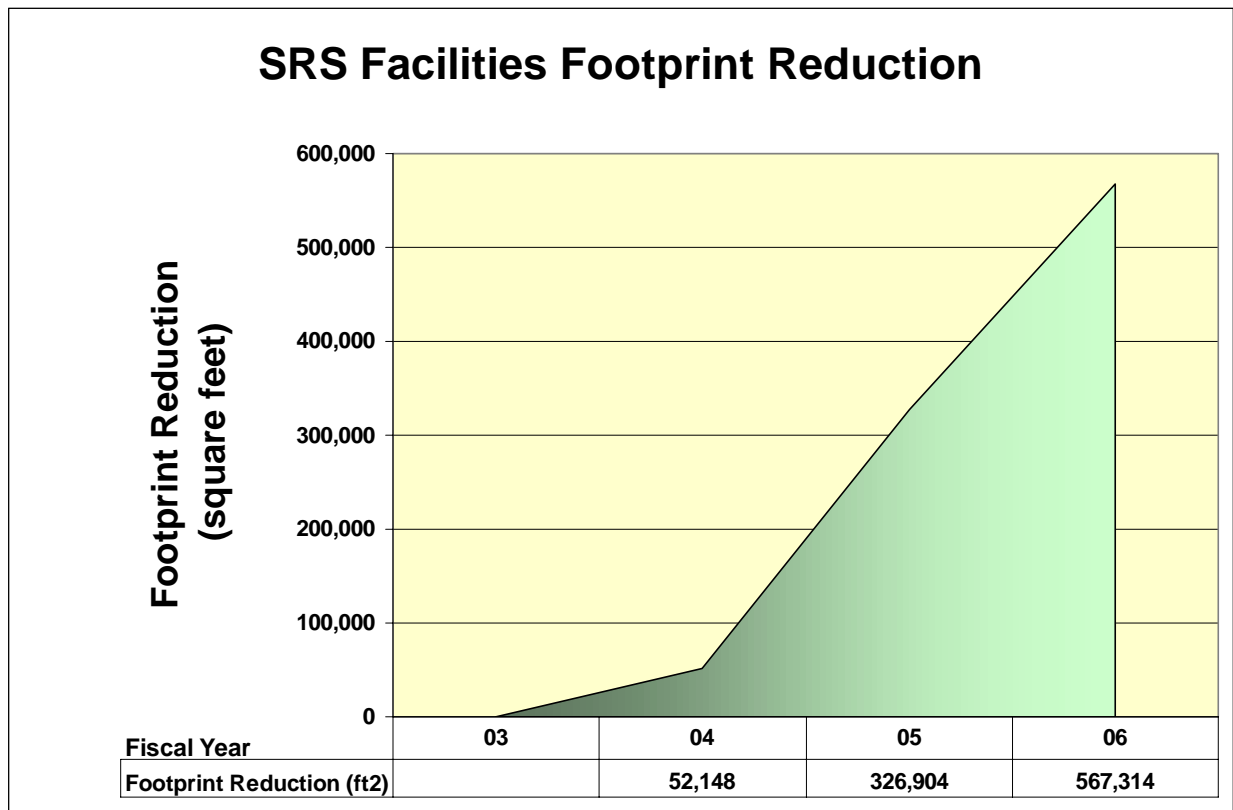
	FY-03	FY-04	FY-05	FY-06
<b>Planning</b>				
<b>D Area</b>				
<b>TNX</b>				
<b>M Area</b>				

**Funding Requirements (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined.

	FY03
Initiative Cost Estimate <sup>1</sup>	5
Cost Reduction Challenge	0
Net Funding Request	5

Note: 1. Near-term D&D activities outside the scope of this initiative, as discussed in Section 3 of this PMP, will be funded by other initiatives contained herein (MM-1 and WM-2). Longer-term actions will be funded by reallocating funds from the \$8-12 billion savings that will result from accelerated cleanup.

Performance Metrics:



## Safeguards and Security (S&S) Program

### Program Description

The Savannah River S&S program serves national security interests through the protection of SRS nuclear weapons materials, production facilities, property and classified matter from theft, sabotage, or unauthorized control. The baseline also supports the SRS Strategic Plan elements of national security and nonproliferation as required by the Atomic Energy Act, other federal statutes, Executive Orders, and other federal directives.

Physical security components include protective force personnel, equipment and facilities, physical security protection systems, and a comprehensive Personnel Security program. These elements provide for intrusion detection and assessment, entry/access controls, barriers/secure storage, explosive detection and monitoring of tamper-indicating devices and alarms in support of the control and accountability of special nuclear materials (SNM).

Information Security components provide for effective classification, declassification, and unclassified controlled nuclear information (UCNI) programs to ensure information is identified (and protected) at the proper security level. Operations security, classified matter protection and control (CMPC), export control, and security incidents programs ensure consistent guidance and appropriate levels of awareness and controls are established across the Site. Cyber Security programs are directed toward the protection of information systems that process classified or unclassified information or are critical to facility operations to avoid the compromise of national security information.

## Safeguards and Security Program

### Initiative Title: SS-1, Accelerate Required Improvements to General Site Security Infrastructure

**Initiative Description:** Site security is effected primarily by vehicular inspection, personnel identification, intrusion detection and access control into and within the SRS; this control and inspection is accomplished at various Site perimeter barricades and Entry Control Facilities (ECF) throughout the Site. However, the formidable appearance and efficiency of the security process that takes place at these locations also effect Site security. In light of the September 11<sup>th</sup> terrorist attacks on our country, proposed improvements to security facilities have been identified to improve the appearance and process. Upgrades to the Site's existing physical security system infrastructure are also needed to continue supporting current and proposed Site missions.



The scope of this modification is:

- To replace existing Site perimeter barricades with new facilities that present a secure and formidable appearance to individuals approaching the Site.
- To replace existing Site perimeter barricades that permit vehicle control, inspection and personnel identification in a more efficient manner, complying with current security requirements.
- To upgrade or replace selected entry control facilities at Property Protection Areas, Limited Areas and Protected Areas to allow the necessary control of pedestrians and vehicles, complying with current security requirements.
- Correct existing physical security system shortcomings due to equipment obsolescence, and provide technology improvements that will minimize Protective Force and maintenance staffing.



**Current Baseline:** The current plan for the perimeter barricades and entry control facilities is to maintain existing facilities and fund Protective Force compensatory measures as required due to equipment failure. The proposed project develops conceptual design packages and schedules during FY02 and FY03. This scope includes:

- Upgrade Perimeter Barricades to accommodate vehicle inspections (similar to a toll plaza)
- Install additional wider lanes and appropriate search equipment
- Procure and install equipment enabling detailed searches of vehicles
- Renovate Limited Area Entry Control Facilities to allow appropriate control of pedestrians and vehicles
- Create adequate all-weather search areas for vehicle ingress and egress

The proposed Security System Restoration Line Item will avoid shortcomings due to equipment obsolescence. This scope includes:

- Local Area Network (LAN) Upgrades
- Wide Area Network (WAN) Upgrades
- Access Control Device Replacement
- Alarm Multiplexer Control System Replacement
- Host Computer Replacement
- Argus Migration
- Closed Circuit Television (CCTV) Replacement

**Initiative Benefits:** This work allows SRS to maintain acceptable levels of security for the stored SNM and positions the Site to continue to support material consolidation. Improved searches will be accomplished by providing adequate facilities and improved technologies to perform the searches. Improved reliability of the physical security system's access control and intrusion detection sub-systems prevent the need for costly deployment of Protective Force labor as compensatory measures.

**Prerequisites to Success:** Continued support for S&S funding for KAMS will permit the receipt and protection of SNM from across the DOE Complex.

**Schedule:** The barricades and entry control facilities are currently being addressed by the Corps of Engineers with a goal of producing conceptual designs during FY02/03. The physical security upgrades are staggered over the next five years beginning with requests for funds in FY03 to begin conceptual design. This waterfall scheduling was developed to maximize existing Site resources.

**Funding Requirements (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined. Future funding requirements will be based on existing threat guidance.

SS-1	FY03
Accelerate Restoration and Post 9/11 Improvements to General Site Security Infrastructure	31.0

Note that MM-1 and MM-3(C) address the Security components associated with Nuclear Materials initiatives.

**Performance Metrics:** Existing Site Project Management and Project Controls tools will be utilized to track project performance.

## Safeguards and Security Program

### Initiative Title: SS-2 (C), Centralize Alarm Service at SRS



**Initiative Description:** The SRS has the only Underwriters Laboratory (UL) listed Central Alarm Station in the Federal Government. The system can provide remote monitoring of fire, commercial security, and process alarms from across the DOE Complex utilizing commercial technology 24 hours a day, seven days a week (24/7). The system has sufficient capacity to accept complex wide input today provided necessary staffing is made available to monitor these signals. Currently SRS is handling 2 panels from Fernald as well as 300 SRS panels.

The technology in use on the SRS Security and Fire Alarm System (SFAS) is the same as that currently employed by every major central alarm station in operation today. Through the use of standard telephone lines, alarm reporting is almost instantaneous. Major corporations such as Wal-Mart monitor the security and fire alarm systems at all of their business locations nationwide (or worldwide) 24/7 from a single location utilizing the same central alarm station technology.

SRS costs will range from \$1.0 - \$2.0 million to achieve DOE Complex savings of \$25.0 - \$50.0 million. Savings will result from avoiding operating costs and major investments to replace aging alarm infrastructure at other sites.

**Current Baseline:** The SRS SFAS currently costs approximately \$1.7 million per year to operate and monitors about 300 panels from SRS and 2 panels from Fernald. Collectively, these panels are interfaced to over 10,000 fire alarm points.

**Initiative Benefits:** In addition to the potential DOE Complex wide savings, utilization of the existing SRS infrastructure will:

- Enhance Homeland Security through standardization of alarm system monitoring and reporting including subcontractor offices/facilities not located at large DOE sites (e.g., design firm offices containing site specific sensitive data)
- Enhance personal safety/security by providing personnel with nationwide mobile communication and Global Positioning System (GPS) tracking
- Avoid duplication of services within the DOE Complex
- Demonstrate cost effective implementation of commercial practices
- Minimize new capital investments to replace aging alarm infrastructures within the DOE Complex

**Prerequisites to Success:** The success of this initiative is dependent on DOE-HQ and the Complex to:

- Reprogram existing alarm panels to redirect signals to SRS
- Change site specific "concept of operations" to rely upon others for service/support

**Schedule:** The SRS SFAS is currently handling signals for SRS and 3 panels at Fernald. Once funding is made available to support staffing, the SFAS can provide service immediately to another 300 alarm panels (about 10,000 alarm points). System use and growth will depend upon service transition from other sites. Outyear funding request is based upon expectations of gradual growth in number of customers serviced.



**Funding Requirements (\$ million):** The table below shows the near-term funding requirement for FY03. Funding for FY04 to FY08 remains to be determined. Increased funding is necessary in order to add the personnel to staff the central alarm stations along with hardware costs associated with installation of redundant telecommunication paths.

SS-2 (C)	FY03
Centralized Alarm Services at SRS	1.088

**Performance Metrics:** Metrics utilized to judge the performance of this initiative will be the overall costs either saved or avoided by other sites as they eliminate the need for central monitoring infrastructure and operations center staffing.

## 4.3 Other EM Program Descriptions

The other components of the SRS EM Program are described below. While these components of the EM Program do not have strategic initiatives that will directly accelerate the completion of the EM program associated with their scope, these components are critical to executing the scope of the EM program.

### SRS Infrastructure Program

The SRS Infrastructure Program is responsible for planning and managing the capital projects to maintain all general site infrastructure that supports existing EM missions and ensure that adequate margins of safety and supply are maintained for other DOE missions hosted at the Site. General Site infrastructure consists of the support facilities, systems and equipment that provides necessary services to the Site's missions, both inside and outside the limited area fences. It includes intra-area utilities and common appurtenances such as roofs, administrative housing, laboratories, and emergency systems. It does not include operating facilities that unique or directly related to the mission capabilities required to execute EM and other DOE missions at the Site. The systems and facilities that comprise general site infrastructure are:

- Administrative facilities
- Central Laboratory Facility (CLAB)
- Computing/Telecom
- Site Dams
- Electrical transmission system
- Heating, ventilation and air-condition (HVAC) systems
- Roofing systems
- Sanitary sewer system
- SRTC
- SFAS
- Steam system
- Transportation (site roads and railroads)
- Water systems (process and domestic water)

SRS general site infrastructure continues to maintain support to all enduring site missions.

### Essential Site Services and General and Administrative Programs

The Essential Site Services (ESS) and General and Administrative (G&A) programs provide operating support that enables the Site to meet its mission requirements. EM and other DOE missions at the Site fund these programs as site overhead expense. Types of work categorized as ESS scope includes:

- Environmental Services, such as environmental monitoring and reporting and regulatory compliance support and oversight.
- Safety and Health Protection Services, including dosimetry, respiratory protection, medical services, and the SRS safety program.
- General Site Services, such as engineering services, maintenance programs, non-destructive testing, geotechnical support, criticality and safety analysis programs, emergency services and fire department, fleet management, etc.

- General Site Infrastructure that operates and maintains shared facilities across the site, such as roads, bridges, parking lots, grounds, dams and other facilities outside the general areas.

The G&A workscope includes functions such as the following:

- Procurement services and materials management
- Information technology
- Management services including contract administration, document control and records management
- Human resources
- Internal and contractual audits
- Legal Counsel
- Finance
- Public affairs